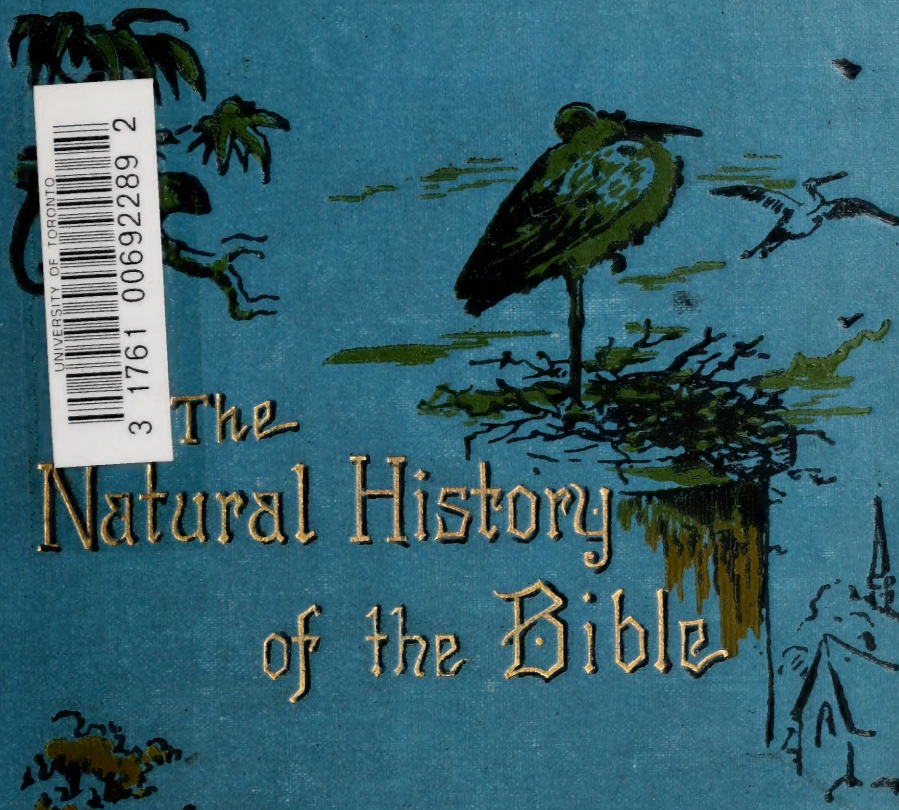
UNIVERSITY OF TORONTO
3 1761 00692289 2



The Natural History of the Bible

By

H. B. TRISTRAM
D.D., L.L.D., F.R.S.

Digitized by the Internet Archive
in 2007 with funding from
Microsoft Corporation

http://www.archive.org/details/naturalhistoryof00trisuoft

THE NATURAL HISTORY OF THE BIBLE

BEING

A REVIEW OF THE PHYSICAL GEOGRAPHY, GEOLOGY AND METEOROLOGY OF THE HOLY LAND

WITH A DESCRIPTION OF EVERY ANIMAL AND PLANT MENTIONED IN HOLY SCRIPTURE

BY

H. B. TRISTRAM, D.D., LL.D., F.R.S.

CANON OF DURHAM

AUTHOR OF 'BIBLE PLACES,' 'THE LAND OF ISRAEL,' ETC.

8/8/06
80078

NINTH EDITION

PUBLISHED UNDER THE DIRECTION OF THE GENERAL LITERATURE COMMITTEE

LONDON

SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE

NORTHUMBERLAND AVENUE, W.C.; 43, QUEEN VICTORIA STREET, E.C.

BRIGHTON: 129, NORTH STREET.

NEW YORK: E. & J. B. YOUNG & CO.

1898

Richard Clay & Sons, Limited,
London & Bungay.

PREFACE.

WHATEVER may be original in the following pages is the result of careful investigation of the Natural History of the Holy Land, carried on for months in the country itself.

Especial attention has also been paid to the present vernacular of the country, in which the writer has discovered many Hebrew names scarcely changed in form.

So far the work may lay claim to novelty. Nor is it in other respects a compilation. In the field of critical research the writer has carefully referred to the highest and latest authorities, while among older writers he has had such predecessors as Bochart and Olav Celsius, authors inaccessible to English readers, but to whose massive learning and colossal labours he is deeply indebted.

The main object of the present volume has been to illustrate, not technically, but popularly, every allusion to Natural History in the Holy Scripture, by the actual condition of the country, and by the character of its existing products, zoological and botanical.

For this special purpose, the writer spent nearly a year in the Holy Land in 1863–4, accompanied by botanical and zoological collectors,* and made extensive collections in every branch of Natural History. During some months, the spare hours of a very scanty leisure

* Mr. B. T. Lowne, M.R.C.S., and Mr. Edward Bartlett, of the Gardens of the Zoological Society of London.

have been devoted to the determination of the specimens obtained, and to the examination of the works of the many philologists who have written on the subject.

No attempt has been made to enter on the more complete details of Palestine Zoology and Botany, which the author has set forth in other publications.

Deeply impressed with the conviction that no allusion in God's Inspired Word can be held unimportant, or its illustration trivial, the writer sends out this little book, with an earnest prayer that it may assist in some slight degree to the profitable study of the Bible, and thus tend to the greater glory of God.

GREATHAM VICARAGE,
June 10, 1867.

CONTENTS.

CHAPTER I.

PHYSICAL GEOGRAPHY OF THE HOLY LAND.

PAGE

Mountain Ranges of the North—Maritime Plains—Southern Wilderness — Sinaitic Peninsula — Hermon — Bashan — Gilead—The Ghor or Jordan Valley—Dead Sea—Isolation —Disappearance of Forests in the West—Riches of Eastern Palestine—The Hill Country—Vegetation of Lebanon; of Gennesaret; of the Jordan Valley—Variety in Unity . 1

CHAPTER II.

GEOLOGY.

Volcanoes—Earthquakes—Sinai—Southern Wilderness—Limestone—Chalk—Basalt of Galilee—The Lejah or Trachonitis —Streams of Lava—Age of the Dead Sea—Salt Mountain —Hot Springs—Bitumen—Alluvial Plains 15

CHAPTER III.

METEOROLOGY

Temperature of Jerusalem; of the Maritime Plains; of the Jordan Valley — Rainfall — Early and Latter Rains — Thunderstorms—Winds 27

CHAPTER IV.

MAMMALS—PART I.

PAGE

Classification of Mammals—General Summary—Apes—Ass—Wild Ass—Badger—Bat—Bear—Beast, Wild—Behemoth or Hippopotamus—Boar, Wild—Bull, Wild—Camel—Cat—Cattle—Chamois, or Aoudad 35

CHAPTER V.

MAMMALS—PART II.

Coney—Dog—Dragon—Dromedary—Elephant—Fallow Deer—Ferret—Fox—Gazelle—Goat—Goat, Wild, or Ibex—Greyhound—Hare—Hart and Hind—Hedgehog—Horse—Hyæna—Jackal—Leopard 75

CHAPTER VI.

MAMMALS—PART III.

Lion—Mole—Mouse—Porcupine—Pygarg—Roe; Roebuck—Satyr—Sheep—Swine—Unicorn or Auerochs—Weasel—Whale—Wolf 115

CHAPTER VII.

BIRDS—PART I.

Birds: Creation of; Natural Economy of; Clean and Unclean; Habits of; Singing of; Modes of Capture of; Species of; Causes of the Variety and Number of—Fowls—Ossifrage—Eagle or Griffon—Gier Eagle—Vulture—Osprey—Glede—Kite—Hawk—Night Hawk—Owl: Great Owl—Little Owl—Screech Owl 156

CHAPTER VIII.

BIRDS—PART II.

Raven—Sparrow—Swallow—Swift—Lapwing—Hoopoe—Cuckoo—Dove—Pigeon—Turtle Dove—Fatted Fowls—Cock and Hen—Peacock—Partridge—Sand Grouse—Quails—Ostrich—Crane—Heron—Bittern—Stork—Swan (Ibis)—Pelican—Cormorant 198

CHAPTER IX.

REPTILES.

PAGE

Tortoise — Leviathan or Crocodile — Chameleon — Dragon — Gecko—Lizard — Serpents: Adder — Asp — Cockatrice—Viper—Fiery Serpents. Frogs 254

CHAPTER X.

FISH — FISHING.

Creation of Fishes—Clean and Unclean—Fishes of the Nile; of the Sea of Galilee; of Jordan; of Jabbok—Fishpools of Heshbon—Fisheries—Fish Markets—Fishing by Nets; by Hooks; by Spear—Jonah's Fish—Fish-worship—Dagon, the Fish God 282

CHAPTER XI.

INVERTEBRATE AND ARTICULATE ANIMALS.

Molluscs: Snails—Onycha—Purple, Shell-fish—Pearls. Annelids: Horseleech—Worm. Arachnida: Scorpion—Spider. Insecta: Lice—Flea—Beetle—Locust — Bald Locust — Grasshopper — Palmerworm — Cankerworm — Caterpillar —Crimson Worm—Ant — Hornet — Bee — Moth — Flies. Anthozoa: Coral 295

CHAPTER XII.

BOTANY: PART I.—TREES AND SHRUBS.

Variety of—Algum or Almug Trees—Almond—Aloe—Lign Aloe—Apple—Ash Tree—Balm—Balsam—Bay—Box—Camphire — Caper — Cassia—Cedar—Chesnut—Cinnamon —Citron — Cypress — Ebony— Elm—Fig—Fir—Frankincense—Gopher Wood—Grove—Hazel—Heath—Husks—Juniper (Retem)—Locust Tree—Manna—Mastick Tree—Mulberry—Myrrh—Myrtle—Nuts—Oak—Oil Tree—Olive —Olive, Wild—Palm Tree—Pine Tree—Pomegranate — Poplar—Shittah—Shittim—Acacia—Spicery—Tragacanth —Stacte—Sycamine—Sycomore—Teil Tree—Terebinth — Thyine Wood—Vine—Vine, Wild—Walnut—Willow—Oleander 330

CHAPTER XIII

BOTANY: PART II.—HERBS AND FLOWERS.

PAGE

Anise—Barley—Bdellium—Beans—Bramble—Brier—Pricks—Thistle—Thorns—Thorn-hedge—Bitter Herbs—Bulrush—Flag—Paper-Reed—Reed—Rush—Papyrus—Calamus—Cockle—Coriander—Corn—Cotton—Cucumber—Cummin—Dove's Dung—Fitches—Flax—Galbanum—Gall—Garlic—Gourd—Grass—Hay—Hemlock—Herbs—Hyssop—Ladanum—Leeks—Lentils—Lily—Linen—Mallows—Mandrake—Melon—Millet—Mint—Mustard—Nettles—Onions—Pannag—Pulse—Rose; Rose of Sharon; Rose of Jericho—Rue—Rye—Saffron—Soap Plant—Sodom, Vine of—Sodom, Apple of—Spelt—Spikenard—Sweet Cane—Tares—Wheat—Wormwood 419

INDEX OF PASSAGES OF SCRIPTURE ILLUSTRATED OR QUOTED . 499

INDEX OF SUBJECTS 513

NATURAL HISTORY OF THE BIBLE.

CHAPTER I.

Physical Geography of the Holy Land.

Along the straight eastern shores of the Mediterranean there run, very near the coast, two parallel ranges of mountains, forming a rugged barrier between the sea on the west, and the wide desert plains of North Arabia and Assyria, which stretch to the Euphrates and the Tigris, on the east.

The western range, continuing almost unbroken from Mount Taurus, in Asia Minor, where it overshadows the city of Tarsus, culminates at length in the Lebanon, on the northern frontier of Palestine, its highest peaks being Dhor el Khodib, just above the famed cedar grove, 10,050 feet high, capped with all but perpetual snow, and Jebel Sunnin, thirty miles farther south, 8550 feet above the sea. A short distance south of this mountain the ancient limits of the Land of Israel begin, and the Lebanon gently melts away, expanding in breadth as it diminishes in height; and forming by its many spurs the rugged hill country of Northern Galilee, cleft by the deep fissure of the Leontes, the modern Litany, which winds, with startling suddenness, first south and then westwards, till it opens on the Phœnician plain, and enters the sea a little to the north of Tyre. To this gorge of the Leontes extended the possessions of the tribe of Naphtali. The range then spreads itself more diffusely into the hills of Southern Galilee, till at Nazareth it slopes into the wide Plain of Esdraelon, leaving the even dome-shaped Hill of Tabor like an outpost standing forward in the plain. From Tabor the Plain of Esdraelon stretches westwards to the sea, only interrupted by the low ridge which parts it from the Plain of Acre,

into which flows the River Kishon, through a broad opening where there is a blending of the maritime and inland plains, at the north-eastern shoulder of Carmel. Against Carmel the river seems to rush, and then, turning gently westwards, flows sluggishly by the northern edge of the mountain into the Mediterranean. A bold spur to the north of Acre pushes into the sea, completely separating the Plain of Phœnicia from that of Acre, but itself divided, and culminating in the points of Ras Abiad (the white promontory), or Ladder of Tyre, and Ras Nakura. This spur encloses a small plain in its bifurcation.

South of Esdraelon the hilly range starts up again, its wide front stretching from Cape Carmel on the west, along the ridge which dips near Megiddo. It then rises into the hill-country of Samaria, with Jezreel on its northern slope, while Little Hermon and Mount Gilboa continue the chain to Beisan (Bethshean), overhanging the Jordan. Southward, in a labyrinth of irregular hills, rocky dells, and narrow valleys (of which the most remarkable is the Vale of Shechem, between Ebal and Gerizim), with here and there a rich plain intervening, the mountain range continues through Ephraim, Benjamin, and Judah, to the south of Hebron. This hill-country, which embraces most of the historical sites of Palestine, reaches in its higher elevation an average height of 2500 feet above the sea level: Ebal being 2700 feet, Gerizim 2650, Jerusalem 2610, the Mount of Olives 2724, Bethlehem 2704, and Hebron 3029 feet.

Below Hebron the 'hill-country' sinks and expands into the 'south country,' a wide region of rolling downs, broad shallow valleys, and gentle elevations, bare of wood, and suited for pasture rather than cultivation, such as the region of Beersheba. This gradually fades away into the desert, the wilderness of the wanderings, the Desert of Paran, the modern Et Tih, a vast limestone plateau gradually rising from Beersheba, which is 1100 feet above the sea, to Jebel Moyle in its centre, 1750 feet, and thence to a plateau of 2500 feet: and culminates in Jebel Tih, 4654 feet. Then a narrow sandy desert intervenes, and the Sinaitic group of granite peaks suddenly rises to a height of 9300 feet, rivalling the lofty summits of Lebanon, and finally terminates in Ras Mohammed at the bifurcation of the Red Sea.

We must remember that this backbone of Palestine absolutely touches the coast at only two or three points south of Lebanon, as at the Ladder of Tyre and Carmel. The western shore is fringed by a succession of plains, narrower in the north, but widening into the desert in the south; first the narrow strip called the Plain of Phœnicia, on the edge of which stand the cities of Sidon and Tyre; then, after the headlands spoken of above, the crescent-shaped Plain of Acre, with the old port of Achzib (Zib) at its north end, Acre or Ptolemais in the centre, and Caiffa (Sycaminum) at the south, at the foot of Mount Carmel. Carmel, by its projection, forms the Bay of Acre, and is the northern barrier of the great Plain of Sharon. It leaves, however, a narrow sandy belt at its foot, by which there is easy communication along the shore. The Plain of Sharon, the old heritage of Dan, with the ruined ports of Dor and Cæsarea, and the still flourishing town of Jaffa (Joppa), here begins, widening as we advance to the south, and gradually melting into the low Plain of Philistia, between which and Sharon there is no natural barrier. This is the *Shephelah* or 'low country' of Scripture, and it finally is lost in the sandy desert, which, commencing from the south-west on the sea coast, gradually encroaches on the fertile plain.

The eastern of the two parallel ranges of mountains which run through Syria from north to south is known as the Anti-Lebanon, and is generally inferior in elevation to the Lebanon, but is the mother of the Orontes, the Abana, the Pharpar, and the Jordan, all of which, the great rivers of Syria, take their rise in the same region, not far apart. This chain is divided from the Lebanon, north of the Holy Land, by a broad valley called El Buka'a, the ancient Cœle-Syria, or Hollow of Syria, the tetrarchate of Abilene of the New Testament.

Just south of Cœle-Syria, the chain reaches its greatest elevation in the crowning height of Hermon or Jebel Sheikh (*i.e.*, the prince mountain), 9800 feet above the sea. Hermon looks down on the whole of Palestine. When we enter the land from the north, as we creep round the base of Lebanon and approach the Phœnician plain, its dome-like crest rises above the flattened ledges of the Southern Lebanon. If we enter from the south, we have scarcely traversed the Judæan wilderness before we detect a dim white cone overlooking the

brown heights of Samaria and the dark green hills of Galilee.

To the east and south-east of Hermon extends a vast rugged region, comparatively unmarked by any pre-eminent peaks, but seamed and furrowed by endless hidden ravines, cracks in the molten sea of lava which has once been poured over the whole country, and then cooled down, a sea of black rock, whose very waves seem to have been arrested and petrified before they had time to fall. This region is part of the kingdom of Og, king of Bashan, the Argob of the Old Testament, the Trachonitis of the New Testament, now known as the Lejah. In its cracks and fissures it still maintains a considerable population. The region itself, physically speaking, is quite out of the boundaries of Palestine, but, politically, it was part of Israel, and, geologically, it has affected by its irruptions the eastern bank of the Upper Jordan, and modified the character of the country.

From Hermon the second range still continues its parallel southward course, prolonged, less diffusely than the Lebanon, into the trans-Jordanic chain which everywhere bounds the eastern horizon to the traveller in Western Palestine, the long straight line of the mountains of Ajlun, Gilead, and Moab. Between Hermon and Ajlun, in northern Gilead and Bashan, the range has rather the appearance of the wall of an elevated plateau gently falling eastward than of a true mountain chain. But Ajlun, its pine-clad summit often capped with snow, looks down on the Jabbok from a height of about 6500 feet, and Jebel Osha, the highest top of Mount Gilead, is estimated at about 5000 feet. The principal peaks of the Moab range, or Mount Abarim, are Nebo, Attarus, and Shihan, which have not yet been accurately measured, but of which, by our barometrical observations, Nebo appears to reach the height of 4600 feet. From Moab this chain still continues southward, where Mount Hor rises to 5300 feet, enclosing the clefts of Petra; and thence forming the eastern front of the Arabah, it continues to Akabah, the ancient Ezion-geber, and fringes the eastern shore of the Gulf of Akabah, opposite to the Sinaitic group.

It may be observed that the drainage from the east side of this range nowhere reaches the sea or the Valley

of the Euphrates; but as the Barada and the Awaj (the Abana and Pharpar) are lost in the deserts east of Damascus, so all the streams to the south of these are soon absorbed in the sand after fertilizing the Hauran, and south of it a rich pastoral country, the Belka, or Plains of Moab. Beyond these another elevation of the desert forms the western watershed of the Euphrates valley.

But it is between the two parallel chains of mountains which we have traced that the most extraordinary physical feature of the country is found. It is not a valley merely, but a deep chink, ploughed deep down into the bowels of the earth, which separates Western Palestine from the country east of Jordan—the Ghor, or Jordan valley. From the rise of that mysterious river, in the rocks of the Anti-Lebanon, the valley steadily deepens. It pauses awhile in the high Lake of Merom, the modern Huleh, just south of Hermon, and below the city of Laish or Dan, not far from the later Cæsarea Philippi, where it collects in a wide basin the contributions of many affluents. Thence it descends rapidly to the second halting-place in its career, the Sea of Galilee, linked for ever with our holiest memories. Deepening still as it proceeds, the river breaks from the southern end of the lake to enter on the third stage of its existence, plunging in a strangely tortuous course, with windings so infinitely multiplied that it increases a distance of 60 miles to 200, while confined within the narrow trench of its *lower* terraces, rarely more than two miles wide, which form the edge of the Ghor, or 'Plain of Jordan' of the Jews. The upper terraces reach back for several miles to the enclosing hills. At length, as the valley deepens, the Jordan becomes, in the Dead Sea, a long pool, forty-two miles long, and from twelve to sixteen wide, 1292 feet below the level of the sea, the deepest depression on the earth's surface. It is this deep furrow which has caused the marvellous variety of climate, products, and scenery which are the characteristics of the land, and has for many centuries separated the history and fortunes of the country on this side, and of that on the other side Jordan. The Jordan is unique among rivers in its origin, its lonely course, and its gloomy termination.

Southward of the Dead Sea, the deep trench still continues in the Arabah but gradually rises, until a little

south of Petra we find the watershed of the Dead Sea and the Red Sea at a height of 787 feet above the sea level, to which the Valley of Akabah thence descends at the ancient port of Ezion-geber.

From this rough sketch of the country, we may see at once its isolation and the endless variety of its physical character. Its isolation—for, standing midway between the great empires of Assyria and Egypt, it is separated from each by the almost impassable barrier of a terrible desert—the Wilderness of Paran to the south, the Desert of Assyria to the east. From the western world it was shut out by the long and almost harbourless coast of the Mediterranean; from Northern Syria, by the mountain ranges of Lebanon and Hermon. Between these, the gate of the country lay open in the long Valley of Cœle-Syria.

But most marked is the variety in its physical character. On the sea coast, we find the various maritime plains, some of them of surpassing richness, yielding in profusion the crops of Southern Europe, corn, millet, and abundance of fruits, with rich gardens and orchards round the cities. In these plains frost is unknown, and the harvests rarely suffer by drought, so abundant is the drainage from the hills, and so copious are the rains of autumn and winter.

The hill-country, however, from the southern cities of Judah up to the rocks of Lebanon, was that in which the population was chiefly massed. Here the physical character of the country precluded, for the most part, the corn farms of the plain, and induced the careful terracing of the hills, where the vine, the fig tree, and the olive were the staple products. In the earliest historical period of the country, the days of the patriarchs, these terraces had not yet been formed, but the primæval forest still covered the hills, affording covert to the wild beasts, and modifying the temperature of the air. During the Israelitish period, the whole of these forests gradually disappeared, giving way to the artificial culture of the terraces; but their place was taken by the evergreen olive, which still drew down from the clouds a sufficient supply of moisture. During the wars and anarchy which have desolated the East since the fall of the Roman Empire, the terraces were neglected, the olive trees were not tended, nor a succession kept up. Often they were

felled in mere wantonness or by barbaric hordes, and the terraces became naked and exposed to the full violence of the rains. The walls which supported the soil soon crumbled, and the sudden rains, washing the earth into the valleys, have left many tracts of bare rock, where formerly were oliveyards, vineyards, and gardens. Nor only so. As the country has become denuded of wood, there has been a gradual diminution of the rains, and the land has been far more exposed to periodic droughts than in the earlier periods of its history. The very labour which was expended on rendering it capable of maintaining a dense population has actually tended to increase its present desolation. The tillage and terrace cultivation destroyed the natural undergrowth, and, as the rocks have become denuded, there has been no soil to maintain the spontaneous growth; so that the land has not returned to the state of primæval forest, but has become artificially barren and naked.

This decadence has been the work of successive ages. It was long before all the forests were stripped for cultivation. We read, in the times of the Kings, of the Forest of Hamath and of the Wood of Ziph, in bare Judæa. Kirjath-Jearim was 'the city of forests,' and even on the naked hills of Benjamin there was the Forest of Bethel, the haunt of the bear and the covert of the lion. Even so late as the days of the Crusades there was a pine forest on the hills between Jerusalem and Bethlehem. Now, it would be no difficult task to count the trees in Western Palestine. On Carmel alone remains any vestige of primitive natural forest, and that is fast disappearing under the axe of the Turks. Further north, a few patches of forest remain on Tabor and near Sepphurieh, but these are all till we enter the roots of Lebanon.

If, however, we wish to form a correct idea of the state of Canaan in the days of the patriarchs, we need only cross to the other side Jordan and mount the highlands of Gilead. The half nomad tribes of Reuben, Gad, and Manasseh, to whose lot this extensive region fell, never pressed by population, nor feeling the land too narrow for them, were content to cultivate only the plains and dells, and, excepting in a few cases, do not seem to have terraced the steeper hills. But, indeed, though the trans-Jordanic range is quite as high as the hills of Western Palestine, it is not so broken up. Only four

streams of any size furrow it: the Yarmuk, the Jabbok, the Callirhoe, and the Arnon. To the east, the hills gently melt away into the immense red plain which reaches the Hauran or Bashan, the farthest possession of Manasseh, after the hills of which the Assyrian desert begins. In the north, we find an open plain eastward, extending to the Lejah (Trachonitis), and farther Bashan, and westward the range is dotted with noble oaks, rather park-like than in the form of dense forest, deciduous in the lower grounds, and evergreen on the higher ranges. Among these roam the flocks and herds of the wandering Bedouin.

Next, in Gilead, we come to a more densely-wooded region, a true forest in places, the tops of the higher range covered with noble pines; then a zone of evergreen oaks, with arbutus, myrtle, and other shrubs intermixed; lower down, the deciduous oak is the predominant tree, mixed with wild olive (*Celtis australis*), and many other semi-tropical trees, which, in their turn, yield, as we descend into the Jordan valley, to the jujube, or *Zizyphus*, the oleaster, and the palm. But in all these forests are open glades and dells, where corn is grown or olives planted, and the streams are fringed with oleander. Such must have been the appearance of the neighbourhood of Shechem and Bethel in the days of the patriarchs.

Farther south, the regions of Ammon and Moab are, for the most part, without forest, the trees being principally terebinth, scattered here and there over a region of fine turf, well watered, and still covered with flocks, till we reach the eastern corn plains of the Belka, now the richest district of Syria. This country, almost in its primitive state, is a picture of what Southern Judæa and the neighbourhood of Beersheba once were, before the denudation of the forests had checked the annual rainfall. There is a beauty in Gilead, a richness in Moab, and a grandeur in Bashan, which makes it hard to believe that only the narrow cleft of the Jordan valley separates them from the grey hills and naked rocks of Western Palestine. Though no longer do herds of wild cattle roam among the oaks, still countless flocks and herds may be seen moving down like armies to drink at the streams at sunset, with the camels, such as those of the Midianites, swarming like clouds of locusts, "rams and lambs, and goats and bullocks, all of them fatlings of Bashan." Troops of gazelle (the roebuck of Scripture)

still swarm in all the forest glades and on the plains, the antelope of various kinds, the addax and the oryx, come up from the desert; the ostrich occasionally courses over the Belka; the ibex, or wild goat, abounds in all the rocky dells of Moab; the leopard, the cheetah, and the Egyptian lynx (*Felis chaus*), still lurk in the woods, and may be constantly seen and tracked, though the lion is extinct: while the wild boar, the wolf, and jackal are probably far more plentiful than at any former period.

Both the hill-country of Judæa and the plains of Moab melt away into the desert, where the physical features are entirely different from those of the rest of the country. On the western shores of the Dead Sea, this desert pushes up to the gorge of the Kedron, while in Philistia, and on the south-west, it can scarcely be said to begin until some distance south of the Wady es Seba. Excepting near the rare wells, there is no pasturage or fine herbage. The whole area is rock, or broken stone and shingle, rarely sand, and, for the most part, the vegetation is confined to scattered stunted bushes, sparsely sprinkled here and there, rising to the height of one or two feet, and affording food only to the camels which browse as they traverse it, and to a few antelopes, gazelle, and jerboas. But horned cattle there are none. Sheep cannot find pasturage, and only where the desert begins to merge in the low country do a few goats mingle with the camels.

Very different is the northern frontier of the land. As the southern touches a tropical desert, so the northern rises into almost arctic regions. Hermon and Lebanon, with their snowy summits almost always in sight, furnished the images which else could hardly have been familiar to the dweller by the Mediterranean—'snow and vapours,' 'snow like wool,' 'hoar-frost like ashes,' 'ice like morsels.' Around the snowy tops of these mountains the 'vapours' constantly hang, the source of moisture to the lands beneath. There is a marked contrast in the physical character of the two ranges. While Lebanon is wooded or clothed with verdure to within 1000 feet of its summit, Hermon and its cluster of satellites are for the most part bare, excepting in the thin threads of verdure which mark the course of the streams which drain them, and the forest does not climb more than a few hundred feet up the mountain-side.

As we ascend from Galilee to Lebanon, the change of the vegetation at once arrests attention. First the olive, then the fig tree disappears; the mulberry and the pear take their place. Then the apricot is supplanted by the cherry. The vine clambers on the terraces to a greater height, the severity of the winters being compensated by the extreme heat of summer. The walnut tree flourishes, and, wherever the frosts forbid the olive, is largely cultivated for the oil of its nuts. We see in the Lebanon valleys, with their terraces, where every scrap of soil is made available for man, a specimen of the former cultivation of the Land of Israel, though the produce is different, the mulberry and the silkworm being the modern staple of these industrious mountaineers. The evergreen oak is soon lost, and the juniper, the pine, and especially the cedar, are found scattered over the highest peaks and in the roughest glens, where there is no soil for man to cultivate. But here, too, the ancient forests have disappeared, the threat of Sennacherib has been fulfilled: "I am come up to the height of the mountains, to the sides of Lebanon, and will cut down the tall cedar trees thereof, and the choice fir trees thereof" (2 Kings xix. 23). The cedars are only, for the most part, in groups, sufficient to tell what was the ancient glory of the Lebanon, but no more. The fruits, the flowers, the plants of Lebanon and Hermon, are all of an Alpine character, and so are the birds and animals. The bear still lingers among the rocks, though all but extinct in the lower country, but the other larger animals have been extirpated by the density of the population. It is to be observed that there are many trees and plants found on the one range which do not exist on the other. Thus, the cedar is peculiar to the Lebanon, though Hermon and the Peaks of Gilead seem equally adapted for its growth; no pines are found on Hermon, while the pine of the mountains east of the Jordan is distinct from that of the Lebanon.

One more physical region remains to be noted—the Jordan valley, which has been already described. Its geological character must be reserved for a further chapter; but in its natural products it stands unique, a tropical oasis sunk in the temperate zone, and overhung by the Alpine Hermon. The course of the River Jordan, in this most unlike the Nile, hardly fertilizes anything

beyond its immediate banks. It winds from the Sea of Galilee to its final resting-place, a sparkling serpent writhing in a barren desert, with only here and there an oasis of deepest green. But, from its extraordinary depression, whatever vegetation there is, is called into almost unnatural vigour by the life-giving touch of its waters, while the same heat rapidly scorches up every particle of verdure that is found beyond their reach.

The contrast between the vegetation of this valley and the surrounding countries begins early in its course, where, in the seething marshes of the Huleh (Merom), we find acres of papyrus, that graceful reed so long among the most prized productions of the Nile, but now wholly extinct in Egypt. In the Huleh it reaches the height of sixteen feet, and flourishes luxuriantly, but to find it again we must travel either to India or to Abyssinia. On the western shore of the Sea of Galilee, the Plain of Gennesaret again produces the papyrus. Here we find the thorny 'nubk' or jujube (*Zizyphus spina-christi*), a tropical tree, the characteristic of the whole of the lower course of the river. The date palm was once abundant here, and Josephus thus describes Gennesaret:—"The soil is so fruitful that all sorts of trees can grow on it, and the inhabitants accordingly plant all sorts of trees there, for the temper of the air is so well mixed, that it agrees very well with their several sorts. Walnuts, which require the coldest air, particularly flourish there in vast plenty; there are palm trees also, which grow but in hot air; fig trees also, and olives grow near them, which yet require an air that is more temperate. One may call this place the ambition of nature, where it forces those plants that are naturally enemies to one another to agree together. . . . It supplies . . . grapes and figs continually during ten months of the year, and the rest of the fruits, as they become ripe together, through the whole year." (Jos. Bell. Jud. III. x. 8.)

Below the Lake of Galilee, on the east side, the palm still continues to wave, the oleander everywhere fringes the streamlets and the river: and many trees unknown in the rest of Palestine, tamarisks of peculiar species, and others, crowd the banks of the Jordan. As we reach the Dead Sea, the contrast is still greater. There are five oases, if we may so call them, where all the rarities of

this trophical basin are collected, nurtured by copious springs and streams. These are the Plains of Shittim at the north-east of the Dead Sea, and of Jericho at the north-west, the little Bay of Engedi on the west side of the Dead Sea, the Wady Zuweirah at the south-west, and the Ghor-es-Safieh, the ancient 'waters of Nimrim,' at the south-east of the Dead Sea. In these the climate is truly tropical; even in the depth of winter the thermometer ranges from sixty to eighty degrees; the corn is ripe in March, melons ripen in winter, and indigo is largely cultivated. The 'zukkum,' or false balm of Gilead; the other tree of Nubia and Abyssinia; the henna, or camphire; the *Salvadora persica*, and many other products of the torrid zone, abound. In mid-winter in the Plain of Zuweirah the ground is carpeted with beautiful flowers in blossom, many of them of Abyssinian and South Arabian, and some of Indian, types.

The birds, also, of these favoured spots are peculiar, many of them having not yet been discovered in any other part of the world, and others Indian, or from Equatorial Africa. Besides the common turtle-dove, which visits all Syria in summer, another large species, the Indian collared turtle (*Turtur risorius*), is very common round the Dead Sea throughout the year; a nightjar, a sparrow, and a grakle not hitherto found elsewhere, reside permanently here, and a beautiful little sun-bird, or *Nectarinia*, sometimes mistaken for a humming-bird, flits among the shrubs in great numbers. The butterflies, too, distinct from those of the upper country, but resembling the species of Nubia and Abyssinia, hover over the flowers in January. Thus, all departments of nature bear testimony to the tropical character of this little known but most interesting region, a strange and startling contrast to all around it.

Enough has been said to show the extraordinary variety of geography, natural appearances, and temperature to be found within the limits of this narrow country. There is the variety produced by the encroaching desert on the one side, and by the eternal freshness of the sea on the other. There is the variety caused by the hot winds or sirocco, the east wind of Scripture, scorching vegetation on the one hand, and by the cold breezes from the mountain ranges on the other; but, above all, there is the variety caused by the enormous difference of level in

the various parts of the land; from the Jordan valley, sunk 1300 feet beneath the sea line, to the maritime plain, thence to the highland centre, averaging 1500 feet above the sea, up to the northern mountains, 10,000 feet high, covered by an almost perpetual snow, and under which the climate approaches that of regions much farther north.

This variety has had its effect on the various allusions to natural history which occur in the sacred writings—'a variety in unity,' as it has been called, in which the Bible stands alone. The bearing of the physical geography of the Holy Land on the Holy Scriptures has been thus eloquently set forth by Dean Stanley:—"Such a country furnished at once the natural theatre of a history and a literature which were destined to spread into nations accustomed to the most various climates and imagery. There must, of course, under any circumstances, be much in the history of any nation, eastern or western, northern or southern, which to other quarters of the world will be more or less unintelligible. Still, it is easy to conceive that whatever difficulty is presented to European or American minds by the sacred writings, might have been greatly aggravated had the Bible come into existence in a country more limited in its outward imagery than is the case with Palestine. If the Valley of the Nile or the Arabian Desert had witnessed the whole of the sacred history, we cannot but feel how widely it would have been separated from the ordinary thoughts of an European: how small a portion of our feelings and imaginations would have been represented by it. The truths might have been the same, but the forms in which they were clothed would have affected only a few here and there, leaving the great mass untouched. But as it is, we have the life of a Bedouin tribe, of an agricultural people, of seafaring cities, the extremes of barbarism and of civilization, the aspects of plain and of mountain, of a tropical, of an eastern, and almost of a northern climate. In Egypt there is a continual contact of desert and cultivated land; in Greece there is a constant intermixture of the views of sea and land; in the ascent and descent of the great mountains of South America there is an interchange of the torrid and the arctic zones; in England there is an alternation of wild hills and valleys with

rich fields and plains. But in Palestine all these are combined. The patriarchs could here gradually exchange the nomadic life, first for the pastoral, and then for the agricultural; passing insensibly from one to the other, as the desert melts imperceptibly into the hills of Palestine. Ishmael and Esau could again wander back into the sandy waste which lay at their very doors. The scapegoat could still be sent from the Temple courts into the uninhabited wilderness. John, and a greater than John, could return in a day's journey from the busiest haunts of men into the solitudes beyond the Jordan. The various tribes could find their several occupations of shepherds, of warriors, of traffickers, according as they were settled on the margin of the desert, in the mountain fastnesses, or on the shores of the Mediterranean. The sacred poetry, which was to be the delight and the support of the human mind and the human soul in all regions of the world, embraced within its range the natural features of almost every country."—*Sinai and Palestine*, pp. 126–7.

CHAPTER II.

Geology.

The allusions to geological phenomena in Scripture are few. Even to Solomon, with all his study of nature, geology, the youngest of the sciences, was wholly unknown; and it is only in our own days that attention has first been drawn to the structure of the crust of our globe, and to the history of a past antiquity to be gathered therefrom. Beyond the knowledge that "in the beginning God created the heaven and the earth," that "the sea is his, and he made it, and his hands formed the dry land," the enquiry of the ancient believer did not extend. Utterly rejecting the childish cosmogonies of the nations around him, he simply saw in all beneath his feet the evidence of God's handiwork, who "laid the foundation of the earth," and in every change of nature knew that alone unchanging, "the glory of the Lord shall endure for ever; the Lord shall rejoice in his works."

Some allusions, however, we find to geologic phenomena, and to agencies which, now extinct or dormant in Bible lands, must have been more or less familiar to the writers of Holy Scripture. Among these are the references to earthquakes, and to volcanoes, as though 'burning mountains' were a then existent phenomenon: "He looketh on the earth, and it trembleth: he toucheth the hills, and they smoke" (Ps. civ. 32). "Touch the mountains, and they shall smoke" (cxliv. 5). Unless reference be here intended to the visible presence on Mount Sinai, not by volcanic agency, but by special intervention of the Lord. For we must remember that in two of the most stupendous manifestations of God's power on record, viz., the destruction of the cities of the Plain, and the revelation on Mount Sinai, no ordinary geologic forces, but only a direct Divine interposition, can meet the requirements either of the history or the facts.

One passage appears to point directly to the destructive effects of volcanic eruptions, metaphorically applied

to the devastating invasions of Babylon: "Behold, I am against thee, O destroying mountain, saith the Lord, which destroyest all the earth: and I will stretch out mine hand upon thee, and roll thee down from the rocks, and will make thee a burnt mountain" (Jer. li. 25). One earthquake in particular is twice mentioned incidentally in the Prophets; and it must have been a terrific shaking of the earth, since the references show it was remembered for many generations. Amos delivered his prophecy, "in the days of Uzziah king of Judah. . . . two years before the earthquake" (Amos i. 1). Three hundred years afterwards, the terrors of that earthquake were still a vivid tradition, for Zechariah warns Jerusalem: "Ye shall flee, like as ye fled from before the earthquake in the days of Uzziah king of Judah" (Zech. xiv. 5). Earthquakes have since, at many different epochs, devastated the land of Israel. Some are mentioned by Josephus; and one of the most fearful in its destruction of human life was the great earthquake of January 4, 1837, when great part of Tiberias was overthrown, the city of Safed utterly destroyed, and more than ten thousand persons buried in the ruins.

A hint of the gradual formation of the earth's crust appears to be contained in the address of Wisdom (Prov. viii. 25, 26): "Before the mountains were settled, before the hills was I brought forth: While as yet he had not made the earth, nor the fields, nor the highest part of the dust of the world." See Appendix, Note A.

The geology of the Bible lands is less varied than that of most other countries of equal extent—very much less so than that of England. We said that the manifestations on Mount Sinai have nothing in common with volcanic phenomena; and this is evident, because the whole Sinaitic range is composed of granite and plutonic rocks, without a trace of basalt, lava, or other products of volcanic agencies. The whole of the southern part of the Sinaitic peninsula consists of a cluster of bold granite peaks, seamed and rent by deep valleys, and fringed by a narrow belt of sand on the edge of the two forks of the Red Sea. The granite of these mountains is the same in character from the base to the summit; the tame bright red granite which is found at Assouan, on the Nile, and which was so largely employed in the construction of the Egyptian temples. It is often inter-

sected throughout with veins of greenstone, and especially of porphyry.

In Mount Sinai itself, the lower part of the mountain is formed of much coarser granite than the peak, which has much more quartz in its composition. Mount St. Katharine, on the contrary, is largely composed of porphyry. There is, in fact, a sort of porphyritic dyke which strikes right across the Sinaitic mountains from north-east to south-west. It is to be observed that, though the granite is often penetrated by porphyritic veins, the porphyry is never here penetrated by granite, plainly showing that its upheaval has been subsequent to that of the granite. Now, though granite and porphyry are considered amorphous or igneous rocks, they have nothing whatever to do with ordinary volcanic agencies; and it is thus clear that no effects of any mountain crater or eruption could have been mistaken for the visible majesty and glory described by Moses, or for "the mount that might be touched, and that burned with fire," for "the blackness and darkness, and tempest, and the sound of a trumpet, and the voice of words."

As we advance northwards from Sinai, the exclusively granitic character of the mountains is gradually lost; first by the large insertion of dykes of porphyry, which in its turn is mixed with dykes of greenstone, and on the north-western part of the Sinaitic range gives place to syenite. The syenite and the porphyry are apparently of contemporaneous origin, and run into each other by imperceptible transitions.

When we reach the Wady Nasb, where the range trends towards Suez, we come upon sandstone overlying the syenite; the sandstone range of the Tûr here begins, and extends in a belt right across the peninsula, fringing the granite mountains, and overlying their outworks. I have not seen any fossils which decide its geological age. Here is the only true sand to be found to any depth in the wilderness. This sandstone district is generally lower as it extends northward, until there rises sharply from it, like a line of bold bluff, the great limestone range of Jebel et Tih, about 2500 feet high, overlying the sandstone which creeps up to its base, and gradually shelving towards the east. It is not a range of mountain, but rather the wall which fringes the vast limestone plateau called the Desert of Tih, or 'the wanderings,' the coun-

try of the Tiyahah Arabs, and the region where probably a large part of the forty years' wanderings of Israel were passed. In this great plateau, which covers nearly four-fifths of Arabia Petræa, there are none of the startling contrasts and bright granite peaks or deep ravines of Sinai; the whole country preserves its limestone character, a succession of rounded and featureless hills with the same tabular outline and blanched desolation. There is no event in the history of the forty years' wanderings which derives any special light from the scenery or character of the vast pebbly desert. The limestone is generally of the same age as that of the Egyptian desert, marked in some spots by the same fossils, especially the nummulites, which, though not so abundant as in the nummulitic limestone of Egypt, are sufficiently so to fix its character as of the cocene or lower tertiary period.

This limestone plateau extends through the southern Judæan wilderness almost to Hebron. Just south of Hebron another bed crops out, and continues without interruption the lower visible formation throughout the whole of central Palestine up to the spurs of Lebanon. But these two formations must not be supposed to be entirely distinct groups. The great limestone formation which covers the whole of Syria, with the few exceptions to be named, is cretaceous, equivalent to the greensand or neocomian, underlying the cretaceous or chalk formation belonging to the base of the eocene tertiaries which prevails in the Wilderness of Beersheba, and consisting principally of limestones well known by their fossils, but also exhibiting here and there calcareous sandstones, marls, and clays. The few exceptions to this structure are only to be found in or near the Jordan valley or 'Ghor.'

Here and there are to be found throughout central Palestine, especially on the tops of the rounded hills, a stratum of white chalk largely intermingled with silex or flint, which mark the cliffs with rich ribbon-like masses. This eocene chalk formation is manifestly the remains of a vast deposit which once covered the whole country with an even surface, but which has been swept away eastward and westward by denudation, having been unable, from its soft and friable nature, to resist the action of the volume of water which has

swept through the wadys. It is never now, excepting near the Dead Sea, found on the low grounds, though large quantities of rolled flints or chalcedony washed from it are found in all the gravels and alluviums. This chalk is especially to be noticed on the crest of the Mount of Olives, on the south-east of Carmel, and on most of the eastern spurs of the mountain range towards the Dead Sea. On the Mount of Olives especially it is rich in fossils, which settle beyond dispute its geological age.

From the Desert of Tîh to Hebron the southern pastoral country consists of a series of rolling dome-shaped hills and downs, with short and rounded valleys, gentle ascents, long ridges, and small plateaux. But when we enter upon the true calcareous limestone the valleys deepen, the hills are knob like and somewhat monotonous in form, but full of caverns. The limestone is solid, firm, and friable, poor in fossils, varying in colour, without any marked lines of stratification, inclining to a crystalline structure. Russegger suggests that the innumerable caverns of this region, grotto-like and wide at the mouth, contracting as they recede, are probably due to the former emission of pent-up gases. All the valleys of this system (we are now leaving out of consideration altogether the valley of the Jordan and the Dead Sea basin) are valleys of denudation formed entirely by the washing of the streams, and there is no reason for believing that the geological aspect of the country has varied in the slightest degree since the appearance of man upon the earth.

This limestone consists of two tolerably distinct groups. That which meets the eye everywhere, excepting where the later chalk has escaped denudation on the hill tops, or where a fissure has revealed the lower depths, is the neocomian, containing fossils similar to, but seldom identical with, our own greensand, and very largely intermingled with dolomite or crystalline magnesian limestone. This dolomite contains iron pyrites, 'a land whose stones are iron,' but is without fossils. It is far more abundant in the north than the south, but may be seen in large masses to the east and north-east of Jerusalem beyond the Mount of Olives. In the region of Galilee it predominates, and all the country from Samaria to Safed and the Lebanon and Hermon is composed of it entirely, except where basalt interrupts it.

Since this limestone was deposited there have been tremendous disturbances of the earth by earthquakes and subterranean convulsions, and I have never seen any strata more contorted and violently disarranged than the neocomian of Palestine. An instance of this may be seen in the cleft of the Wady Kelt, going down to Jericho, and in the upper part of the gorge of the Kedron, between Marsaba and Jerusalem, a region seldom carefully examined, but most rich in geological studies.

Here and there the lower stratum is exposed, which doubtless extends through the whole country, but is only, so far as I am aware, apparent in the deep clefts between Jerusalem and the Jordan, in the wadys near Beisan (Bethshean), and a few other deeply-furrowed ravines on the west of the Dead Sea. It may be distinguished by its darker colour, and by the large quantity of iron which it contains.

Both these deposits are alike contorted and dislocated, but this by forces not now in action, and are part of the general configuration of the land as left at its last upheaval from the ocean long before the earliest times of Bible history. Of course the rains have much deepened many of the ravines or wadys, but this does not affect the general appearance or character of the country.

But there is a lower substratum of the lower chalk which seems to underlie the whole region from the Lebanon to the southern mountains of Moab, but which very seldom crops out, though it may be clearly traced in the cleft of the Wady Kelt between Jerusalem and Jericho. It is a solid compact stone of a dark colour, and the characteristic fossil, from which indeed it derives its French name, is the *cidaris*, a species of huge extinct *echinus*, or sea-urchin, the spines of which are terminated by knobs the size of an olive. These spines are found in immense quantities in the Lower Lebanon, and are well known as the 'petrified olives of Sodom' of the natives (*Cidaris glandifera*). M. Lartet is disposed to consider this fossil and the deposit to which it belongs as of a much later period than Russegger, viz., that of the lower chalk or greensand which covers the greater part of the Lebanon.

Hermon and the Anti-Lebanon appear to be a mass of limestones of the neocomian or greensand period, and from the almost vertical stratification in many parts, to

have been raised by enormous upheaving forces from below.

In Galilee we come for the first time upon a new feature in the geology of the country, viz., large dykes of basalt, occasionally breaking through the limestones or lava which has overflowed it from some extinct volcano. Jebel Duhy, or Little Hermon, between Nazareth and Jezreel, to the south-east of the Plain of Esdraelon, is the first appearance. Here the basaltic dyke seems to have lifted up the hill, and protrudes at its bluff western end. The decomposition of the basalt has probably added largely to the richness of the soil. Farther north we may trace streams of lava from two distinct sources. First, the Horns of Hattin, whence it seems to have flowed down eastward to the edge of the Lake of Gennesaret and of its fertile plain, the soil of which is largely composed of decomposed trap, and westward to the great plain of the Ard el Hamma, on the road between Tiberias and Nazareth. The second source of these igneous irruptions is farther north, near Safed, where three craters, now always filled with water, Birket (or pool) el Jish, Delâta, and Taiteba, have sent mighty rivers of molten stone to the eastward; or it may be that tremendous dykes of basalt pushed up through the limestone, and overthrew it in vast masses by the Lake of Gennesaret. This region is that which has suffered most from earthquakes, the occasionally active evidences of the existence of those great forces which have formerly convulsed the district and so strangely contorted the limestones.

East of Jordan, from Hermon to Moab, the geology is similar to that of the right bank, but without traces of the *more recent* chalk which caps so many of the western hills, being chiefly of the lower chalk, capped on the east of Ajlun by a soft, friable sandstone, without fossils, similar to that between Sinai and Tih, and with occasional masses of porphyry and greenstone on the east side of the Dead Sea, and much basalt on the east of the Lake of Galilee. The east side of the Dead Sea is fringed by a steep range of mountains, very different in their composition from anything on the west, the mountains of Abarim. These are formed of sandstone, capped, as they recede from the lake, by chalk deposits, in which are the same general fossils as on the other

side. This sandstone appears to be the same as that of Petra and of Nubia; and both the sandstone, and much of the superficial chalk limestone, is of a much earlier age than any formation apparent on the west side.

In the Upper Jordan valley, but not farther south than a few miles below the Lake of Galilee, there have been vast inroads of basalt and lava from the east, continuing from the southern spurs of Hermon to the River Hieromax, or Yarmuk. One mighty stream has poured down a narrow valley above Banias (Cæsarea Philippi) from the Birket er Ram (the Lake Phiala of Josephus), now a circular fathomless pool in the mountains, and has thence overspread the valley of the Hasbany, or Upper Jordan, above the Huleh, or Waters of Merom. Through this rich plain, the impetuous river dashes over huge black boulders and basaltic blocks. Lower down, below the Sea of Galilee, a similar stream has once filled up the gorge of the Yarmuk, but, in course of ages, the river has again scooped out a passage through the soft limestone alongside of the hard black rock. Below this there are no basaltic traces on the east side of Jordan.

These eruptions have evidently been the outposts of the wonderful volcanic region of the Lejah, or ancient Trachonitis, which is one great field of lava, seamed by strange deep ravines, in which water is found, and where the inhabitants dwell in caves; while many cones and craters, rising above the troubled sea of suddenly-arrested stone, seem as though their furnaces had been but yesterday extinguished. This region has evidently possessed active volcanoes up to a comparatively recent period, and the black fields of lava have not yet had time to decompose on their surface into soil. Doubtless, many of the disturbances of the Jordan valley are due to the agitations of this fiery region, but the valley itself has had a much earlier origin.

The most remarkable geological feature of the Holy Land remains to be mentioned. This is the great Jordan valley and Dead Sea basin, which plays so important a part in the physical geography of the country. Its physical features have been already alluded to, as well as its depth (1292 feet) below the level of the sea; but, geologically, it is also most interesting. This enormous trench, which furrows Palestine from north to south, and

bisects it naturally and politically, is also an actual geological line, as we have seen, the formations varying to the east and west of it. It has often been supposed that this valley was the remains of a former prolongation of the eastern fork of the Red Sea; but recent investigations by M. Lartet have satisfactorily shown that this is not the case, and that it is the basin of an old inland sea, larger, indeed, than the present lake, but which has had no connection with the Red Sea since the continent assumed its present form. This is shown by the absence of any marine fossils in the most ancient strata of the basin; by the fresh-water character of the later tertiary deposits between the ridge of Arabah and the Dead Sea; by the existing traces of the direction of the streams from the middle of the Arabah toward the north, so that several streams, draining a vast extent of country, flow into the south end of the Dead Sea; and by the geological evidence that there has been no material elevation of the land in the centre of the regions between the Dead and Red Seas since the existing valleys were formed. The cretaceous and eocene limestone of the west dips rapidly down towards the Dead Sea, while the sandstone on the east lies wholly unconformable with it, and inclines but slightly westward.

The lake, however, at the end of the tertiary period, must have been much larger than it now is, and a deposit of chalky marl all along the west side, and in the niches on the east side where the mountains are not too steep, at a height of about 350 feet, shows the former extent of the sea, when it covered the sandy plain of the Safieh at the south, and the Plain of Jericho at the north, up to the Prophet's Fountain, the site of the ancient city. As the supply of rain has diminished—a supply which must have once been abundant, when the tremendous gorges which open on both sides of the sea were washed out—the evaporation has gradually overpassed the inflow, and the surface has contracted to its present limits. But there is no trace of any important variation since man inhabited the country, and Engedi, one of the oldest places named in Bible history, can hardly have changed its relative position to the shore since it was founded.

The salt mountain of Jebel Usdum is the most inter

esting phenomenon about the lake—a long mass of rock salt, about seven miles long, and from one and a half to three miles wide, several hundred feet high, capped along its jagged top by a mass of gypsum and marl, extending south from the south-western corner of the lake. By this salt mountain several streams percolate, continually bearing additional solutions of salt into the bitter and almost saturated waters. The water of the lake, where saltest, contains twenty-eight parts of solid salts to seventy-two of water, but it varies much in different parts, owing to the inflow of fresh water.

There are many hot springs and sulphur springs both on the shores of the Dead Sea and also in its basin, some of which deposit sulphur largely on the rocks around. Sulphur is also found in nodules among the gypsum and scattered on the surface both north and south of the lake. The hot springs are not confined to the Dead Sea, but are found in other parts of the Jordan valley. On the east side the hot springs of Callirhoe, now the Zerka Main, were the favourite resort of Herod. There are others at Um Keis (Gadara), where are the ruins of baths, and the hot springs of Tiberias have always been famous from the time of Joshua, when they gave name to the place. Most of these hot springs are strongly mineral. The water of Elisha's fountain, though perfectly sweet, is also warm.

Bitumen is found sometimes in large masses floating on the surface of the Dead Sea, especially after earthquakes. We gathered some very large fragments. It also appears in the adjoining wadys in the form of bituminous shales, and sometimes oozes through the limestone as pure bitumen, at other times strongly impregnated with sulphur There are also bitumen wells in other parts of the Jordan valley, the slime-pits of Siddim of old: "The vale of Siddim was full of slime-pits" (Gen. xiv. 10). There are also bitumen wells as far north as the neighbourhood of Hasbeiya, under Hermon.

The geology of the mountains sloping down to the west side of the Jordan generally shows more of the eocene covering than do the central hills, but the floor of the valley itself is all an alluvial or recent deposit. Where, as at Sumrah, quarries have been sunk in the valley itself, they show the soft tertiary beds underlying the marl in an horizontal undisturbed position. The whole valley

bears the lines of two distinct terraces of chalky marl. The upper one, which is by far the broadest, extends back to the limestone hills. The lower one, about 50 to 150 feet deep, reaches to the present channel of the river, and has apparently been hollowed out by the river before it shrank to its present dimensions, and when it filled the whole space between the eastern and western faces of the upper terrace with a broad mighty flow.

M. Lartet, our best authority on the origin of the Dead Sea, considers that at the end of the eocene period, an ocean bed was protruded upwards, corresponding to the land of Syria and Arabia Petræa. Before this there had been a fissure north and south corresponding to the present Arabah and Jordan valley, and the basin of the Dead Sea has thus been formed without any influence from, or communication with, the ocean. Thus the lake has never been anything but a reservoir for the rain-water brought in by the various streams, deriving its saltness from the salt rocks near it, but which has greatly increased under the influence of incessant evaporation. At the end of the tertiary period the lake stood more than 300 feet higher than at present, and the only alterations the district has undergone since, have been the streams of basalt and lava in the north of the Jordan valley. The hot and mineral springs, the bituminous eruptions, and the occasional earthquakes, are the last traces of volcanic action.

From this view it is evident that the catastrophe which overthrew Sodom and Gomorrah can no more be ascribed to an ordinary volcanic eruption than can the fire and blackness of Mount Sinai. Those cities were not situated where the Dead Sea now is, nor were they swallowed up by it; but standing in the *ciccar*, *i.e.*, the Plain of Jordan, and probably somewhere between Jericho and the north end of the lake, they were destroyed by brimstone and fire rained down upon them by a special interposition of Divine power (Gen. xix. 24, 25). The materials for the conflagration were at hand in the sulphur abounding near and in the bitumen with which, dug from the slime-pits of the plain, the houses were probably constructed, or at least cemented.

It only remains to mention that the great maritime plains of Sharon, Acre, and Phœnicia, the central Plain of Esdraelon stretching from Carmel to the Jordan, and

the Plain of Gennesaret, are all alike formed of the *débris* washed down from the hills, and covering the native rock, which is never seen. The soil is very rich, like other alluvial deposits. The actual coast itself is formed of very recent sandstone, full of sea-shells, of species now living in the adjacent sea, and occasionally showing a slightly raised beach, as if the shore had been recently slightly upheaved. The soil of Esdraelon and Gennesaret is chiefly a volcanic *débris*. No mines are worked in Palestine.

CHAPTER III.

Meteorology of Palestine.

The climate of Palestine, as may be seen at once from the physical character and perpetually changing altitudes of the country, varies in every district. There is greater difference of climate to be found within a distance of fifty miles than between the north of Scotland and the southern coasts of England.

The greatest extremes of temperature are experienced in the southern deserts. On these elevated plateaux the thermometer frequently sinks in winter far below the freezing point, while during the day the heat exceeds the summer temperature of England. Thus I have registered the thermometer at Beersheba in February as low as 24° Fahr. at daybreak, the night mean for a week being 31°, while the mean at noon was 72°. The winds in winter, as they blow from the Arabian highlands, are keen and dry, but the power of the sun during the day completely counteracts their effects. After March, frost is rare in the desert, and during the summer the thermometer ranges to 90°, seldom falling below 65° at night.

The climate of Jerusalem, where frequent observations have been made and registers kept, may be taken as an approximate representation of that of the whole of Central Palestine, but very different from that of the maritime plains or of the Jordan valley. Jerusalem, although so elevated (2600 feet), enjoys a climate almost as mild as Gibraltar, with which it is in the same isothermal line, as also with California and Florida, though free from the extremes of temperature to which those countries are subject. January is the coldest month in the year at Jerusalem, the mean temperature being, according to one set of observations, 49° 4′, and in another year 47° 7′. From January the temperature steadily increases, the mean being 53° 7′ in 1844, 54° 4′ in 1855, and 56° 4′, according to our own observations, taken outside the Jaffa gate in 1864, for the month of

February. In May the temperature rapidly increases, from 61° 4′ in April to 73° 8′. July is the hottest month, when the thermometric mean is 79°, but it does not fall rapidly till November, when it averages 63°, the mean for the year being, according to Dr. Barclay's observations during four years, 66° 5′, and in the year 1844, by Mr. Glaisher, 62° 6′. During the coldest parts of the year, in December and February, we experienced no inconvenience from living outside the walls, with no other protection than a single tent.

In Nablous, the ancient Shechem, situated in a sheltered valley, the winter temperature is considerably higher than at Jerusalem, and in Nazareth is sensibly so, though in winter the latter place occasionally experiences quite as severe weather, but this is exceptional. The summer heats are also, in some degree, modified there by the cool breezes from the Lebanon. Thus, though the cold of Galilee and Samaria may be more severe in the day-time, yet the average of the nocturnal temperature is rather higher than on the more elevated hills about Jerusalem. At the same time, while it is very rarely that snow lies for more than an hour or two at Jerusalem, in Galilee it frequently remains two or three days before it entirely disappears.

Frost is very rare at Jerusalem. During the winter of 1863-4, the thermometer only three times touched the freezing point, and the lowest reading registered by us in February was 38°. Snow fell but once in that year, on the 13th of January, for two or three hours, but melted as it fell. The tenderest plants rarely suffer there from frost, and the date palm flourishes, as well as other trees still more impatient of cold.

In the maritime plains the temperature is very much higher than in the highlands, and the crops are about a month in advance of those near Jerusalem. Even so far north as Beyrout, the mean temperature for the year is given by Mr. Glaisher as 69° 3′. In Sharon, and the other low-lying coast plains, frost and snow are quite unknown, though higher up, near Acre, snow falls about once in ten years, and never remains. Insects are found throughout the winter, and supply food for the swallows which remain on the coast through the whole year. Snow must always have been rare in Central and Southern Palestine. Familiar as are the references to it

in the poetical and prophetical books of Scripture, suggested by its constant presence on Hermon and Lebanon, yet in the historical books it is only once mentioned: "Benaiah the son of Jehoiada . . . went down also and slew a lion in the midst of a pit in time of snow" (2 Sam. xxiii. 20).

The rains on the coast are frequently heavy in winter, and I have felt Jaffa and Ramleh bitterly cold during their continuance, with a westerly wind, yet the vegetation is almost tropical, and the climate is on the average milder than in any part of Europe, and though not so hot in autumn as the Algerian plains, is yet, on the whole, considerably warmer than in any part of the Barbary States. The orange groves of Jaffa are among the most luxuriant in the world, and the banana ripens there freely, which it does not ordinarily do on any other part of the Mediterranean coast north of Egypt.

Still more tropical is the climate of the Valley of the Jordan. On the shores of the Sea of Galilee, which is 650 feet below the level of the sea, this change of temperature is unmistakably seen, the depression of the valley causing a sudden change from the climate and products of the Galilean hills around. The extraordinary heat and exuberant fertility of the Plain of Gennesaret were noticed by Josephus, and, though the gardens and palm groves have perished, the wild plants are still semi-tropical in character. The thermometer, at a height of 450 feet above the plain, exhibited from March 17 to April 5 a mean of 63° 2′ Fahr. on the twenty-four hours, and of 73° 1′ from 8 A.M. to 8 P.M. In May the heat had so much increased, that from the 17th to the 25th of May, at an elevation of 200 feet above the lake, the thermometric mean of day and night was 77° 8′, of day only 83° 4′.

As we descend the Valley of the Jordan, the climate steadily increases in temperature, till the maximum is reached on the shores of the Dead Sea. Here frost is unknown. So little is the severity of winter felt that, during the month of January, the lowest mean temperature of the night was 47° 8′, and the mean temperature of the day 67°, the lowest point ever reached by the thermometer being on one occasion 42°. In April, the thermometer registered 105° in the shade, and in the summer so intense is the heat, that even

the naked Arabs of the Safieh and of Engedi are compelled by it to leave these recesses and to take refuge in the highlands.

It is needless to enter into particulars on the climate of the northern frontier, Hermon and Lebanon, which varies according to elevation, from the genial warmth of the lower valleys to the Alpine severity of the mountain tops, clothed with all but perpetual snows, and attaining a height of about 10,000 feet above the sea level.

To sum up shortly, while frost and snow are unknown in the Jordan valley, they are extremely rare, and never last for twenty-four hours in any part of the country south of the northern mountain range. Ice is only occasionally seen on stagnant pools in the hilly districts in the early morning, and the only Scriptural allusions to it are in the Book of Job and in the Psalms.

Rain falls most copiously in the Holy Land, but only at certain periods of the year; and there are few countries in which the probable weather can be reckoned on with greater certainty than in Syria. In the summer and autumn rain scarcely ever falls, and the sky is hardly shaded by a cloud. The clear, uninterrupted glare of the sun's rays scorches up every green thing, excepting the foliage of the trees, and gives the whole country the appearance of a stony desert. When the rains do fall, they are, for the most part, generally distributed within a day or two over the whole country from the Lebanon to Beersheba, though they fall most copiously on the coast and over the central hills, and in much less abundance in the Lower Jordan valley than elsewhere.

The climate is thus naturally divided, not into four seasons, as with us, but into two, summer and winter, which succeed each other with scarcely any intermediate gradations, the summer commencing with the harvest in April, and continuing until the 'former rain' in November. Scripture speaks in many passages of the 'early rain' or 'former rain,' *i.e.*, the rains of autumn and winter, and the 'latter rain,' or showers of spring: "I will give you the rain of your land in his due season, the first rain and the latter rain" (Deut. xi. 14). "The Lord our God, that giveth rain, both the former and the latter, in his season" (Jer. v. 24). "He shall come unto us as the rain, as the latter and former rain unto

the earth" (Hos. vi. 3). "He will cause to come down for you the rain, the former rain, and the latter rain" (Joel ii. 23). "The husbandman waiteth for the precious fruit of the earth . . . . until he receive the early and latter rain" (Jas. v. 7).

These two rains are distinguished by different names in Hebrew: '*yoreh*,' 'the former rain,' and '*malkosh*,' 'the latter rain;' the generic words being '*matar*,' 'rain,' and '*geshem*,' 'a pouring rain.' "The heaven was black with clouds and wind, and there was a great rain [*geshem*]" (1 Kings xviii. 45). The former rain never failed, excepting at times of special visitation from the Lord (1 Kings xvii. 1): but the latter rain was more uncertain, and has ever been looked for with anxiety by the inhabitants of the country, for on its copiousness depend the hopes of the harvest, since it falls at the time when the corn is just pushing into ear, and without it the crop is either deficient or fails altogether: "They waited for me as for the rain; and they opened their mouth wide as for the latter rain" (Job xxix. 23). "(The King's favour) is as a cloud of the latter rain" (Prov. xvi. 15). "Therefore the showers have been withholden, and there hath been no latter rain" (Jer. iii. 3). "Ask ye of the Lord rain, in the time of the latter rain" (Zech. x. 1).

The occurrence of rain after the corn is ripe is scarcely known, and thus we find it suggested as an image of what is most incongruous: "As snow in summer, and as rain in harvest, so honour is not seemly for a fool" (Prov. xxvi. 1). So thunder and rain in the time of wheat harvest (April or May) was the sign granted by the Lord in answer to the prayer of Samuel, and which brought fear and conviction to the people of Israel (1 Sam. xii. 16-19).

It has sometimes been conjectured that the fall of rain has materially diminished since the times of Scripture history. This seems scarcely to be the case as regards the 'former rain,' or winter rains, which descend in torrents unknown in our more northern climate. In fact, so copious are they that the rainfall in the three months of December, January, and February in the driest part of Palestine actually exceeds the total rainfall of the year in the wettest parts of England. Thus, the rainfall of Jerusalem varies from 85 to 44 inches

the mean being 61·6 inches, the greatest fall registered being 33·8 inches in December and 72·4 in three months, December, January, and February. The enormous fall of rain in winter may be best appreciated when we remember that the average rainfall in London for a year is but 25 inches, and for Cumberland and Devon, the wettest counties in England, little over 60 inches.

In the year 1863–4, from July to July, there were forty-three days on which rain fell. From May there was no rain until November 24. After that date to March 4 there were fifteen days on which heavy showers fell, two more on which there were heavy thunderstorms, and sixteen days on which the rain fell continuously, which however never continued more than three successive days at a time. This I take to be a fair average of the ordinary winter rains. From March 4 to April 3 there was no rain, excepting one thunderstorm on March 26. During April there were seven days on which rain fell in showers, and one heavy thunderstorm on April 13, while on May 21 there was a downpour of rain for nine hours on the Plain of Gennesaret, considered an unusual, though most welcome, occurrence. These latter precious showers and thunderstorms are no doubt the 'latter rain' of Scripture.

This record of rainfall during one year may be taken as applicable to the whole country, because, though our own observations were made in the different localities where we were sojourning, we compared notes with friends at Jerusalem, Caiffa, and Nazareth, and found that identical weather had prevailed over the whole country. We thus see how uncertain and precarious is the supply of the latter or spring rains.

It has often been supposed that the rainfall has diminished in modern times. There seems no sufficient ground to support this theory, as regards the *former* or winter rains, but there is every probability that when the country was well wooded and terraced, and those terraces clad with olive trees, the spring rains were far more copious than at present. Many light clouds which now pass over from the west would then be attracted and precipitated in rain over the highlands. We also see how, by a proper system of irrigation and reservoirs, of the former existence of which the ruins all over the

country testify, the land might be cultivated to a degree at present never attempted, and verdure and fertility extended over its whole surface. At present, without any effort to utilize the bountiful supplies of Providence, three-fourths of the rainfall are wholly wasted.

It may be added that the Jordan valley does not receive so copious a supply of rain as either the coasts or the highlands east and west of it. Day after day we have seen the clouds, after pouring their fatness on Samaria and Judæa, pass over the valley, and then descend in torrents on the hills of Gilead and Moab.

Thunder is not uncommon in winter (we encountered four days of thunderstorm); but it is unknown in summer. Hence the awe with which the Israelites heard the thunder invoked by Samuel during wheat harvest, *i.e.*, in May: "Is it not wheat harvest to-day? I will call unto the Lord, and He shall send thunder and rain. . . . . And the Lord sent thunder and rain that day: and all the people greatly feared the Lord and Samuel" (1 Sam. xii. 17, 18).

The winds in Palestine are remarkably regular, both in their seasons and their effects. Thus, in the forty-three days during which rain fell in 1863-4, the wind was invariably west or south-west. So Elijah from the top of Carmel waited for the little cloud arising out of the sea like a man's hand on the western horizon (1 Kings xviii. 44). "When ye see a cloud rise out of the west, straightway ye say, There cometh a shower; and so it is" (Luke xii. 54).

The north wind is rare, and, of course, cool. The south wind, or *sirocco*, is always oppressive at whatever time of the year it blows: "When ye see the south wind blow, ye say, There will be heat; and it cometh to pass" (Luke xii. 55). "Thy garments are warm, when he quieteth the earth by the south wind" (Job xxxvii. 17). We had two days' *sirocco* with the south wind in November, again on January 14 and 15, March 1 and 2, April 21 and 25, May 15 and 16 and 26 and 27. These were the only occasions on which there was south wind, and on each occasion the *sirocco* was most oppressive.

The east wind is very rare from November to June. Occasionally there is a north-east breeze in winter, which is cold, but not rainy. But the true east wind

blowing over the desert in summer, is dry and parching, and withers up all vegetation. Hence it is much dreaded by the inhabitants, and when it blows before harvest-time, it often blights the husbandman's hopes, by shrivelling the ears before they are filled: "Yea, behold, being planted, shall it prosper? shall it not utterly wither when the east wind toucheth it?" (Ez. xvii. 10). "An east wind shall come, the wind of the Lord shall come up from the wilderness, and his spring shall become dry" (Hos. xiii. 15). "Thou breakest the ships of Tarshish with an east wind" (Ps. xlviii. 7). "He stayeth his rough wind in the day of the east wind" (Is. xxvii. 8).

In proof of the accuracy of these allusions, it may be observed that from October, 1863, to June, 1864, there were but six days on which the wind blew from the east, and on each occasion it blew almost a gale, while on the twenty-seven days on which it was from the north-east or south-east it was gentle, though cool in the former case, and close and hot in the latter.

In the Jordan valley the under-currents are often distinct from the prevailing upper wind. The under-current in winter generally blows down the valley from the north, and in summer up the Ghor from the Arabah from the south. Of course in so narrow a defile, lying due north and south, east and west winds cannot prevail.

CHAPTER IV.

Mammals.—Part I.

Mammals, or beasts, are classified in Scripture, first, as to their habits as 'cattle,' or domesticated animals, and 'beasts of the field,' or wild animals; secondly, ceremonially, with regard to their employment for sacrifice or food, they are divided into clean and unclean, the former comprising those which divide the hoof and chew the cud, the latter including all other quadrupeds. This limitation of animal food to the flesh of ruminants, though chiefly having reference to the habits of the animals, is yet, in some degree, also connected with the wholesomeness of the meat. In eastern climates, animal food is a much less necessary article of diet than in colder regions, and heating meats have to be especially avoided. The laws of Mohammed have borrowed these Mosaic restrictions, and the Moslems are even more scrupulous than the Jews on this point, though one or two animals forbidden by the law of Moses, as the hare, are not eschewed by the followers of the Koran. They have likewise retained the injunction of not eating the blood, or anything which has been strangled or killed without bloodletting; and nothing, not even the smallest bird, can be sold in the markets unless its throat has been cut. There was a double reason for this restriction: first, because the blood was held to contain the principle of life; and, secondly, because it was the ordinary heathen practice to mingle the blood with the sacrifice, and offer it on the altar.

The number of mammals in Palestine is, for the extent of the country, unusually large. Eighty species are ascertained to be its present inhabitants, though some of these are almost extinct, or only occasionally straggle within its borders from the adjacent deserts. In the list of domesticated animals, there has been no change since the Scripture period, unless we consider the cat as an addition, it being only once referred to, and that in the Apocrypha. Of wild animals, the only

species mentioned in Scripture, which are now certainly extinct, are the lion and the *reêm*, or unicorn, *i.e.*, the aurochs, but all the larger species have, through the denudation of the forests and the persecution of man, become very much more rare, and some merely linger in the remote fastnesses.

Of the wild beasts once so formidable but few remain to be the terror of the flocks, and none which, unprovoked, will attack man. The wolf, indeed, prowls in small numbers to take advantage of an unguarded flock; the hungry packs of jackals still wake the echoes of the night round the folds and villages; and the hyæna prowls in the burying grounds, and seeks with hideous laugh his uncleanly feasts among bones and carcases; but the lion's roar is no longer heard, and the leopard skulks only in the densest coverts on the sides of Carmel and Gilead, or in the few forests of Galilee, while the bear has retired to the fastnesses of Hermon and Lebanon.

The wild goat still leaps about the cliffs of Engedi, 'the fountain of the kid,' and the gazelle troops not only over the wide plains and downs of Southern Judæa, but even in the valleys of Samaria and Galilee, and up to the very gates of Jerusalem; but the larger antelopes and the deer have long since been hunted out of Western Palestine, and are rarely seen, save on the borders of Gilead and on the Plains of Bashan. The wild boar is still very common, the dread and the abomination of the careful husbandman, whose fields it ravages without remorse, but it seldom visits the neighbourhood of the towns on the coast. The stony rocks, both north and south, are still a refuge for the conies, and hares of various kinds course over all the plains. The lesser rodents are very numerous, and many of them most interesting and curious; marmots, jerboas, rats, and mice, differing in species according to the character of the district, like those of Southern Europe in the north, and Arabian and African species in the south. Our list of these is probably by no means complete, nor is that of the bats, which find a congenial home in the caverns and ravines of every wady.

Several Hebrew words are translated 'beasts.' (1.) '*Behemah*,' the general term for cattle, sometimes also for quadrupeds, as opposed to fowls and creeping things,

as "clean beasts . . . and beasts that are not clean" (Gen. vii. 2). It is also applied to beasts of burden: "to save the horses and mules alive, that we lose not all the beasts" (1 Kings xviii. 5), &c. Sometimes also to wild beasts: "I will also send the teeth of beasts upon them" (Deut. xxxii. 24), &c. (2.) '*Chayah*,' meaning a living thing, but more generally confined to carnivorous animals, 'beasts of the field,' as in Hos. xiii. 8: "The wild beasts shall tear them." So Deut. vii. 22: "Thou mayest not consume them at once, lest the beasts of the field increase upon thee." (3.) *Be'ir*, *i.e.*, 'pasturers' or 'grazers,' used only of domestic cattle or of beasts of burden: "So thou shalt give the congregation and their beasts drink" (Numb. xx. 8), &c.

We may, for convenience, consider the animals referred to in Holy Scripture in the alphabetical order of the names by which they are rendered in our version.

Apes, Heb. *kophim*, are only mentioned in the account of the commodities imported by King Solomon from Tharshish: "Once in three years came the navy of Tharshish, bringing gold and silver, ivory, and apes, and peacocks" (1 Kings x. 22; 2 Chron. ix. 21). The Hebrew word points out both the animal intended and the country from which it came, since it is identical with the modern Tamil name for monkey, as also the words used to express ivory and peacocks are Tamil The Tharshish of Solomon must, therefore, have been some part of Ceylon or of Southern India, unless it were used to express those countries generally.

The word 'ape' is generally used among ourselves for the tailless *quadrumana*, and 'monkey,' for those which have tails. All the animals of this order in Ceylon and Southern India belong, with the exception of the bonneted monkey (*Inuus pileatus*) and its congeners, to the genus *Semnopithecus*, or *Presbytes*, of which at least six species are recognised in those regions. They are known as the Wanderoo monkeys, and have short tails. Probably, the Hebrew word is generic, and applied to the monkey tribe in general. No species of ape is found wild either in Palestine or the adjacent regions, although the Barbary ape (*Inuus sylvanus*) is common throughout the Atlas range, and extends even to Gibraltar, and an allied species is found so far north as Japan. The Hebrews may probably have been acquainted with some of the African

baboons which are perhaps spoken of under the term Satyr, in Isa. xiii. 21; xxxiv. 14. [See SATYR.]

ASS.—Three Hebrew words apply to the domesticated ass: (1.) *Chamôr*, 'he-ass,' like the Arabic *Hhămar*, so called from its 'tawny' colour. (2.) *Athon*, 'she-ass,' and (3.) *'Ayir*, 'a colt,' or 'young ass.'

The origin of the domestic ass (*Asinus vulgaris*) is from the true *Onager*, or *Asinus vulgaris*, the wild ass of North-east Africa, and to Egypt, therefore, we may, with good reason, refer its reclamation. But the period when man first availed himself of the services of the ass as a beast of burden is lost in antiquity. Its use may be traced on the monuments of Egypt and Assyria. Abram rode on an ass, and, in the days of the earliest patriarchs, herds of asses were an important item in their possessions.

It is remarkable that, notwithstanding the length of time that has elapsed since its original domestication, and entirely changed as it is in habits and disposition, the ass has altered less from its pristine form and colour, and is less liable to variations in these respects, than any other domestic animal. It still, in all climates and under all circumstances, retains the general tone of colour which belongs to the wild race, and from which it derives its name, as well as the black line down the back and the transverse black stripe on the shoulders; and the diversities of colour are, for the most part, merely different shades of the same primitive hue. When, however, we read of the ass in Holy Scripture, we must not picture to ourselves the stunted, degraded, spiritless, and ill-used creature which we too often meet with in northern countries, where the ass has degenerated both in size and spirit from the powerful and nimble animal of the East. The ass is less capable of enduring cold than the horse, and has often degenerated as it has advanced northwards. In Syria, it has almost as much care bestowed on it as the horse; it is groomed and well fed, always obtaining its share of barley with its equine companions; great attention is paid to the cultivation of the breed, and the finest and tallest he-asses are carefully selected. These attain a height of thirteen to fourteen hands. They have often great vivacity, and exhibit both ingenuity and humour, sometimes decidedly mischievous. One of our asses which had been severely beaten for misconduct by a member of our party, never forgot the cir-

cumstance, but while ready to sniff and caress any of the others, would stand demurely whenever his old enemy was near, as if unconscious of his presence, until he was within reach of his heels, when a sharp sudden kick, with a look of more than ordinary asinine stolidity, was the certain result. The Eastern ass will accomplish quite as long a day's journey as the horse or the camel; though its speed is not so great, it will maintain an easy trot and canter for hours without flagging, and always gains on the horse up the hills or on the broken ground. The price of a well-bred ass is from 10*l.* to 20*l.*, almost equal to that of a horse.

The ass is frequently mentioned in Scripture as being ridden by persons of wealth and quality, as indeed it is to the present day in the East. Thus Abraham saddled his ass to go from Beersheba to Mount Moriah (Gen. xxii. 3); Balaam proceeded on his ass from Chaldæa to Moab (Numb. xxii. 21), when he was rebuked by the Lord for his iniquity: "The dumb ass, speaking with man's voice, forbad the madness of the prophet (2 Pet. ii. 16). The disobedient prophet who came from Judah to Bethel rode on an ass (1 Kings xiii. 23); the thirty sons of Jair, the judge, rode on thirty ass colts, a proof of wealth and dignity (Judg. x. 4). The family of Abdon the Judge, seventy in number, all rode on asses, a mark of wealth and rank (Judg. xii. 14). So did Ahithophel and Mephibosheth (2 Sam. xvii. 23; xix. 26).

Asses were especially used by women, as by Zipporah (Exod. iv. 20). Achsah, the daughter of Caleb, lighted from off her ass when she petitioned her father for a dowry of springs of water (Judg. i. 14). Abigail rode on her ass to meet David (1 Sam. xxv. 20); and the wealthy Shunamite woman saddled an ass when she set out to fetch Elisha (2 Kings iv. 24). White asses were an especial mark of rank and dignity. Thus Deborah addresses the judges as "Ye that ride on white asses;" and white asses are still in high esteem. Bagdad is celebrated for its breed of white asses, which are considered more fleet than others; and they are to be seen also in Damascus, where they command fancy prices, but are tender, and do not flourish near the coast.

Zechariah had foretold of our Redeemer: "Behold thy King cometh unto thee: he is just, and having salvation; lowly, and riding upon an ass, and upon a colt the foal

of an ass" (ix. 9). In reading this prophecy, and the record of its fulfilment, we must not associate the idea of humiliation, still less of degradation, with the riding on asses' colts. The contrast is rather between the entry of an earthly conqueror and of a peaceful judge. The ass was the peaceable animal of the Prince of Peace, in opposition to the proud war-horse of the conqueror. The horse was never used for agricultural, rarely for peaceful, purposes, and was intimately associated in the Jewish mind with warriors and military pomp. The mention of the sons of the Judges riding on asses' colts, as a mark of peaceful dignity, sufficiently shows that the manner of our Lord's entry did not symbolize humiliation, but peace. He entered, "riding upon an ass, *even*" (as it should be translated) "upon a colt," as did the sons of Jair. The colt, never having before been ridden, was also symbolical; a new time, a new Prince, a new animal to ride upon, which had not been under the yoke. The mother is led with it, to quiet it for the service.

The ass was also used for carrying burdens, and from its strength Issachar is compared to "a strong ass couching down between two burdens" (Gen. xlix. 14). Jacob's sons carried their corn from Egypt to Canaan on asses. Abigail laded asses with her presents for David's men, as did the Israelites, to welcome him as king in Hebron; and in the days of Nehemiah, as at present, the commodities for the market at Jerusalem were brought in on asses. It was also employed in agriculture, as for ploughing: "The oxen likewise and the young asses that *ear* (*i.e.*, till, from the Latin *aro*) the ground, shall eat clean provender" (Isa. xxx. 24); "Blessed are ye that sow beside all waters, that send forth thither the feet of the ox and the ass" (xxxii. 20). It was, however, forbidden to yoke these two together: "Thou shalt not plough with an ox and an ass together" (Deut. xxii. 10), a prohibition which was probably symbolical, like that against a mingled seed in the preceding verse, and against mingled garments, &c., in Lev. xix. 19, teaching to avoid improper alliances in religious or civil life. The prohibition may have been also one of humanity towards the ass, which would be thus unequally yoked.

The flesh of the ass was unclean, and it is recorded as a proof of the terrible severity of the famine in

Samaria, that "an ass's head was sold for fourscore pieces of silver" (2 Kings vi. 25). It is spoken of by Ezekiel as an abomination: "Whose flesh is as the flesh of asses" (xxiii. 20). The laws of Mohammed also forbid the flesh of the ass; but the wild Bedouins east of Damascus pursue the wild ass, and esteem its meat a great delicacy, as did also the Romans.

The importance and value of asses is shown by the presents given to Abraham by the king of Egypt; by their enumeration among the possessions of Jacob, and of Job, who had a thousand she asses. They were so considerable a part of the royal wealth, that David had a special officer over them (1 Chron. xxvii. 30). Nor have they become a less important item in modern Oriental economy; and we have seen in the North of Palestine herds of several hundred she asses kept together for breeding.

The saddle of the ass, so often mentioned in Scripture, is a very elaborate structure, wholly different from that of the horse. Under it is spread a saddle-cloth of several folds of thick woollen stuff. The saddle itself is of great thickness, made of straw stitched under carpet, and very flat at the top, with a high rounded pommel. Over it is spread a saddle-cloth of Persian carpet or velvet, of the brightest colours, ornamented with a fringe hanging over the animal's tail. The stirrups are small and narrow. The bridle is ornamented with embroidery, tassels, cowries, and sometimes little bells are attached to the reins.

Ass, Wild.—Two species of wild ass are recognized in the Hebrew. (1.) *'Aród*, which occurs only in Job xxxix. 5: "Who hath sent out the wild ass (*pere*) free? or who hath loosed the bands of the wild ass (*'Aród*)?" and in Dan. v. 21: "His dwelling was with the wild asses." (2.) *Pere*, which occurs in many passages where a vivid description of its habits is given: "Whose house I have made the wilderness, and the barren land his dwellings. He scorneth the multitude of the city, neither regardeth he the crying of the driver. The range of the mountains is his pasture, and he searcheth after every green thing" (Job xxxix. 6–8). "Doth the wild ass bray when he hath grass?" (vi. 5). "Though man be born like a wild ass's colt" (xi. 12). "As wild asses in the desert, go they forth to their work. . . . The wilderness yieldeth food for them and for their children"

(xxiv. 5). "The forts and towers shall be for dens for ever, a joy of wild asses" (Isa. xxxii. 14). "A wild ass used to the wilderness, that snuffeth up the wind at her pleasure; in her occasion who can turn her away?" (Jer. ii. 24). "The wild asses did stand in the high places; they snuffed up the wind like dragons" (xiv. 6). "They are gone up to Assyria, a wild ass alone by himself" (Hos. viii. 9). All these passages refer to the wild and untameable nature of this animal; to

WILD ASS.

its extreme shyness and wariness, its fleetness, and its abode in the most desolate and barren deserts. Hence Ishmael is aptly described in the angel's promise to Hagar: "He will be a wild (lit. wild-ass) man; his hand will be against every man, and every man's hand against him" (Gen. xvi. 12).

From the frequent and familiar allusions to the wild ass, we may conclude it was much more numerous in the countries adjacent to Palestine in former times than it is at present. Though well known by name, the

wild ass is rarely now found west of the Hauran (Bashan), nor do we find it in the Sinaitic wilderness. The species which is found east of Syria is the *Asinus hemippus*, or Syrian wild ass, which differs from the *Asinus hemione*, the wild ass of Central Asia, in sundry slight particulars of osteology and form. This species was undoubtedly known to the Jews, and is probably the *pere* of Scripture. The *Asinus vulgaris*, or Onager of the ancients, the original of the tame ass, inhabits the Egyptian deserts, and must also have been known. If the species were distinguished from the Syrian one, it may probably be the *'Aród* of the Hebrew. I have seen this ass wild in the deserts of North Africa, in small troops of four or five. When riding in the Sahara, we detected what we took to be antelopes, on a slightly-elevated mound of sand; then, by our glasses, discovering they had no horns, we suspected they were the horses of Bedouins, who might be concealed behind them, till they allowed us to approach near enough to make them out more clearly, when, snuffing up the wind, they dashed off at a speed which the best of our horses could not have approached. I afterwards saw a wild ass in the oasis of Souf, which had been snared when a colt; but though it had been kept for three years in confinement, it was as untractable as when first caught, biting and kicking furiously at every one who approached it, and never enduring a saddle on its back. In appearance and colour it could not have been distinguished from one of the finest specimens of the tame ass. The Syrian wild ass (*Asinus hemippus*) in no way differs from the African in habits.

All the species of wild ass are more or less migratory, travelling north and south, according to the season, in large herds. The Asiatic (*Asinus hemippus*) proceed in summer as far north as Armenia, marking their course by grazing the herbage very closely on their march. In winter they descend as far as the shores of the Persian Gulf. In the same manner the African species is only in summer seen on the confines of Egypt, retiring in winter towards the interior. Their habit of congregating at watering places, and of standing on the watch on any rising ground, both alluded to in Scripture, have been already mentioned.

Badger.—The Hebrew word *tachash*, which is thus

translated in our version, repeatedly occurs in the Pentateuch, with the addition "skins," in the descriptions of the material employed for the outer covering of the tabernacle. "Thou shall make a covering for the tent of rams' skins, dyed red, and a covering above of badgers' skins" (*oroth techashim*): Ex. xxvi. 14, &c. In Ezekiel (xvi. 10) it is also mentioned as the material of which the sandals of Jewish ladies was composed: "I clothed thee with broidered work, and shod thee with badger's skin." The badger (*Meles taxus* of naturalists) is well known, though now very rare in this country. It is found very commonly in Palestine, concealing itself in burrows among the hills; and, though a nocturnal and very shy animal, must be rather common there, as we frequently met with it, and often saw the skins exposed for sale in saddlers' shops. There is no difference whatever between Palestine and English specimens; but there is no reason to think that it was sufficiently common or attainable in the Sinaitic wilderness to have provided an outer covering for the tabernacle, and the skin designated *tachash* is pretty clearly identified by the Arabic *tuchash*, which is a general name for the various species of seals, dugongs, and dolphins, found in the Red Sea, the special name for the dolphin being *delfin*.

The dugongs are a singular group of marine mammalia, having some affinities with the cetacea or whale tribe, with the seals, and in some respects with the *Pachydermata* or thick-skinned quadrupeds. Several species are known in the eastern seas, where they are easily captured, as they resort chiefly to the mouths of rivers, and never leave the shallow water, where they feed on seaweed. They are from twelve to twenty feet in length, sometimes considerably exceeding even the latter measurement. One species has been described by Ehrenberg—*Halicore hemprichii*, from the Gulf of Akabah and the shores of the Red Sea, where it is very common: and Rüppell has described a dugong found among the coral banks of the Red Sea, which he has named *Halicore tabernaculi*, from its being supposed to have furnished the covering for the tabernacle, but which may possibly prove to be identical with Ehrenberg's species. The skin of this animal is used to the present day for purposes similar to

those to which the *tachash* of Scripture was applied. Col. H. Smith mentions its being employed for shoes by the Arabs; and Dr. Robinson writes: "The Superior" (of the convent of Mount Sinai) "produced for me a pair of the sandals usually worn by the Bedouin of the Peninsula, made of the thick skin of a fish which is caught in the Red Sea. The Arabs round the convent call it *tûn*, but could give no further account of it than that it is a large fish and is eaten. It is a species of *Halicore*, named by Ehrenberg *Halicore hemprichii*. The skin is clumsy and coarse, and might answer very well for the external covering of the tabernacle which was constructed at Sinai, but would seem hardly a fitting material for the ornamental sandals belonging to the costly attire of high-born dames in Palestine described by the Prophet Ezekiel" (*Researches*, vol. i. p. 116). As the *tachash* probably included also the seal, the sandals of the Jewish women may have been of that material, and so also may have been the covering of the tabernacle. To identify the species intended is impossible, but enough has been adduced to show that it was one of the marine mammalia.

EARS OF BAT.

Bat. Heb. *'Atalleph*, signifying the 'night-flier,' is included in Lev. xi. 19 and Deut. xiv. 18 among the fowls that might not be eaten, but were an abomination. Bats are further described in the following verse as "fowls that creep, going upon all four." The bat,

though a mammal, was included by the Hebrews among the fowls as having wings; in fact, the word 'fowl' in Hebrew is literally 'winged,' and is as applicable to a bat as to a bird. In Isaiah bats are spoken of as inhabitants of ruins and desolate places: "In that day a man shall cast his idols of silver, and his idols of gold, which they made each one for himself to worship, to the moles and to the bats" (ii. 20); and in the apocryphal book of Baruch bats are mentioned as sitting on the heads of the Babylonian idols (vi. 22). Their habit of resorting in great numbers to caves, ruins, and other dark places, is well known; and bats of many species resort by thousands to the caverns and ruins of Palestine.

One small species of short-tailed small bat (*Vesperugo kuhlii*), well known in the south of Europe, swarms in the quarries under the Temple at Jerusalem, and in the Cave of Adullam, to such a degree that it is almost impossible to keep a torch alight while creeping through the caverns. Another small species, with a tail as long as its body, and the singular horse-shoe nose characteristic of several genera—*Rhinopoma microphyllum*—also found in Egypt, dwells in thousands in the caves by the Dead Sea and in the Jordan valley. In Galilee especially, near the Lake of Gennesaret, the caves are inhabited by clouds of a very large tawny-coloured bat (*Taphozous nudiventris*), an African species. In the wooded districts of the country we also found in caves a large fox-headed tawny bat (*Xantharpyia ægyptiaca*), measuring more than twenty inches across the wings. Besides these several other species were collected by us; among others, the greater horse-shoe bat, rather rare in England (*Rhinolophus ferrum-equinum*); another horse-shoe bat (*Rh. clivosus*), the European mouse-coloured bat (*Vespertilio murinus*). The common long-eared bat of England (*Plecotus auritus*) flits constantly about the Sea of Galilee and harbours in the glens near it; and other south-European and Egyptian species are met with. In Central Palestine, as in Britain, the bats are dormant during the winter; but in the neighbourhood of the Dead Sea, owing to the warmth of the climate, we found them active throughout the year.

Bear. Heb. *dôb.*—The bear is now comparatively rare in Palestine, but in former times appears to have been common throughout the country. Owing to the clear

ance of timber, and the more powerful weapons devised by man, it has been completely extirpated in the south, and in the north is only rarely to be met with in some of the ravines of Galilee. On some parts of Lebanon and on Hermon it is still by no means uncommon. Of its former abundance we have evidence both in the incidents mentioned in the sacred writings and in the frequent allusions to its habits and characteristics. Thus David mentions, in his conversation with Saul, his having slain a lion and a bear which had robbed his father's flock (1 Sam. xvii. 34), a circumstance which corroborates a fact of which we have other evidence, viz., the former abundance of wood in that now denuded district of Judæa.

Again, when the children of Bethel mocked Elisha, and bid him go up after Elijah, we read that "there came forth two she-bears out of the wood, and tare forty and two of them" (2 Kings ii. 24). The ravine leading up from Jericho to Bethel is now entirely bare of timber, and could afford no cover for the bear: but when clothed with wood it must have been, from its ruggedness, a secure fastness for any wild animals. The bear is rarely met with except in forest, and always has its lair under such cover; it therefore is hardly necessary to suppose that the bears migrated from Lebanon and Hermon to the lowlands in winter, traces of them being found in Central Palestine as late as the crusading times.

Although the bear rarely seeks an encounter with man unprovoked, yet in all countries where it is found it is a familiar fact that *individuals*, as is also the case with the lion, will acquire a taste for human flesh, which they will gratify at all hazards. The Ceylonese bear is sometimes the terror of Cingalese villages, from its ravages among the unarmed women and children; but the attack of the bears on the children of Bethel was clearly a divinely-directed visitation apart from the ordinary habits of the animal. That the Syrian bear was formidable to man we have from Amos (v. 19): "As if a man did flee from a lion, and a bear met him;" and the ferocity of the she bear, when aggravated by the loss of her whelps, is repeatedly mentioned. Thus Hushai says to Absalom: "They" (David and his men) "be mighty men, and

they be chafed in their minds, as a bear robbed of her whelps in the field" (2 Sam. xvii. 8). "Let a bear robbed of her whelps meet a man, rather than a fool in his folly" (Prov. xvii. 12). "I will meet them as a bear that is bereaved of her whelps" (Hos. xiii. 8). The lament of those who mourn over disappointed hopes is compared to the deep monotonous growl of the bear by Isaiah: "We roar all like bears" (lix. 11).

The Syrian bear, known by the same name (*dâb*), in Arabic, as in Hebrew, is a species very closely allied to the brown bear of Europe (*Ursus arctos*); but dis-

SYRIAN BEAR.

tinguished by naturalists as *Ursus syriacus*, though Giebel and other writers consider the two identical. It is much lighter in colour than the bear of Europe, but does not appear otherwise to differ in any but very trivial characteristics, and, like it, it lives chiefly on fruits and roots, occasionally varying its diet by a visit to the sheepfolds, or to the goats of the villages. The same species extends through Armenia and Northern Persia. If it be merely a local variety of the brown bear, which is most probable, as no difference excepting the shade of colour has been defined, the same animal

extends from the Pyrenees and Norway to the Himalayas and Siberia.

I never but once saw the Syrian bear south of Hermon; this was in winter, in a rugged ravine near the Lake of Gennesaret. When we visited Hermon, before the snow had melted from the top, we found the snow ridges trodden in all directions by the tracks of bears, which were well known, but not much feared, by the shepherds, and we also saw their traces in the snow on Lebanon. They descend both sides of Hermon, and do considerable damage to the crops, especially the lentils, of which they are very fond.

The Rev. F. W. Holland gives me the following account of the Syrian bear on Hermon:—"On June 27, 1865, I slept on the top of Mount Hermon. Just as the sun was setting, I saw two bears rolling each other over in the snow about 400 yards distant. We went to sleep, fully expecting a visit from them during the night; but they did not disturb us, though at daybreak we found them still near us. When the sun had risen they left the snow and went down the mountain side. As we descended we came upon another in a narrow gorge busily engaged in rolling over the large boulders, though there did not appear to be food of any kind for him among the stones. I was some distance ahead of my companions, and he did not see me till I got within about fifty yards of him. He then reared himself up, and sat grinning at me as I approached with my little revolver, my only weapon. Unfortunately, the Syrian we had with us came in sight, and set up a shout, which so frightened the bear that he turned and fled, falling head over heels on a frozen spring, but did not stop till he was fully a quarter of a mile off, when, turning round for a moment, he shook his head angrily and then galloped away again. Bears must be very common on Mount Hermon. When I pointed them out to our guide, who lived in one of the villages at the foot of the mount, and was a charcoal-burner by trade, he laughed at my appearing surprised to see them, and evidently did not consider them worth looking at or thinking about, saying there were many of them. When we were there, there was but little snow, and the bears had doubtless come up from the lower parts of Hermon to enjoy a roll in it."

Beast, Wild.—The Hebrew word *chayah*, so translated and already mentioned, evidently stands for wild beasts in general. So also does *zîz, i.e.*, moving things, rendered 'wild beasts' in Ps. l. 11: "The wild beasts of the field are mine;" and Ps. lxxx. 13: "The wild beast of the field doth devour it." In Isa. xxxiv. 14 we read: "The wild beasts (*ziîm*) of the desert shall also meet with the wild beasts (*îyîm*) of the island." When, as *îyîm* probably denotes a particular animal, *ziîm* may also stand for some desert wild beast, as the hyæna contrasted with the jackal. So also xiii. 21: "Wild beasts (*ziîm*) of the desert shall lie there." In three passages the plural form *îyîm*, meaning 'the howlers,' occurs. "The wild beasts (*îyîm*) of the islands shall cry in their desolate houses, and dragons in their pleasant palaces" (Isa. xiii. 22). See also xxxiv. 14, quoted above, and Jer. l. 39: "Therefore the wild beasts (*ziîm*) of the desert with the wild beasts (*îyîm*) of the island shall dwell there, and the owls shall dwell therein." There can be no doubt that *îyîm* stands for 'jackals,' the howling of which is so well known, and one of the Arabic names of which is also 'the sons of howling.' These animals, though so common in Palestine, are not mentioned specially under any other names, excepting *shû'al*, which also includes the fox. Bochart considers the *îyîm* to be the same as the Greek *thoes*, which he attempts, I think scarcely satisfactorily, to prove to be some other animal, distinct from either wolf or jackal. But as no such creature is known to exist, and as Pliny's definition of the *thoes* exactly fits the jackal, we may be content with this interpretation. [See Jackal.]

Behemoth.—The Hebrew for 'beasts,' *i.e.*, 'great beasts,' in our version left untranslated, where it occurs in the Book of Job. Elsewhere it is frequently used for cattle, herds, or wild beasts, and is so translated. But in Job a very different and distinct animal, the hippopotamus (*Hippopotamus amphibius*) is portrayed in the address of the Lord to the patriarch: "Behold now behemoth, which I made with thee; he eateth grass as an ox. Lo now his strength is in his loins, and his force is in the navel of his belly. He moveth his tail like a cedar: the sinews of his stones are wrapped together. His bones are as strong pieces of brass; his bones are like bars of iron. He is the chief of the ways

of God: he that made him can make his sword to approach unto him" (or, rather, 'hath furnished him with his scythe,' *i.e.*, 'tooth'). "Surely the mountains bring him forth food, where all the beasts of the field play. He lieth under the shady trees, in the covert of the reed and fens. The shady trees cover him with their shadow: the willows of the brook compass him about. Behold, he drinketh up a river, and hasteth not: he trusteth that he can draw up Jordan into his mouth.

HIPPOPOTAMUS.

He taketh it with his eyes: his nose pierceth through snares" (Job xl. 15-24). The last verse may be better rendered: "Will anyone capture him when in his sight? Will anyone bore his nostril in the snare?"

The old commentators have made all sorts of conjectures on the behemoth. Some have maintained it was the elephant, others the wild buffalo, others the mammoth or some extinct pachyderm; others that it is a poetical description of these large creatures generally. But it appears clear

that the description suits the hippopotamus exactly, and it alone, and this interpretation has been adopted by Bochart and most modern critics. We know from the Egyptian monuments that this huge animal was hunted by them with spears, and noting its place in the description of the marvels of creation in Job, just before the leviathan or crocodile, the sequence seems to be, that, powerful and terrible as is the hippopotamus, yet it may sometimes be taken with spears: "But what canst thou do with the crocodile? Will spears and barbs avail against him?"

When we go into the details of the description, everything points to this mighty pachyderm: "He eateth grass as an ox," and his Maker "hath furnished him with his scythe." The hippopotamus is strictly herbivorous, and makes sad havoc among the rice fields and cultivated grounds when at night he issues forth from the reedy fens. His appetite is immense, and his formidable-looking teeth are of peculiar shape, the lower jaw being furnished with enormous ripping chisel-like canines, and the lower incisors formed for uprooting. "With these apparently combined teeth, the hippopotamus can cut the grass as neatly as if it were mown with the scythe, and is able to sever, as if with shears, a tolerably stout and thick stem" (*Wood's Mammalia*, p. 762). "The mountains bring him forth food." He feeds on the dry land, though an inhabitant of the waters, and searches the rising grounds near the rivers for his sustenance, in company with the animals of the land. But his home is not there: "he lieth under the shady trees, in the covert of the reed and fens." The whole of the day is spent under the shady covert of the marshes, or sleeping and snorting in still water, and in the long reaches of rivers, often sinking to the bottom for a considerable time, and then rising to the surface, where it floats motionless, with only its eyes and nostrils above water. "He drinketh up a river, and hasteth not." This may refer to the incessant snorting of water from his nostrils, or the passage may be explained: "The river swelleth proudly against him, yet he is not afraid," perhaps alluding to the annual rising of the Nile. Livingstone observes, that "they prefer to remain by day in a drowsy yawning state, and, though their eyes are open, they take little notice of things at a distance"

With respect to the difficulty of capturing him, mentioned in verse 24, we know that the ancient Egyptians pursued the river-horse, as he is called, with spears, as depicted on their monuments, but the ordinary mode is by pitfalls, carefully concealed, across the paths they frequent in travelling by night to the pasture grounds, and spiked at the bottom with sharp stakes. These pitfalls require much care in their construction, for the caution and suspicion of the animal are great. "His nose pierceth through snares;" but when once he has inadvertently trodden on the treacherous platform, his despatch is easy. Another method of hunting still practised, is more like the Egyptian mode, floating down the stream on a raft or canoe so as not to alarm the herd, and then striking one with a barbed harpoon, to which a long line and buoy are attached. The animal, unable to disengage itself, is then rapidly pursued, and struck every time he comes to the surface till he is worn out by loss of blood.

The hippopotamus was the largest beast known to the Jews, and thus well merited the name 'behemoth,' the beast *par excellence*. At present it is found throughout Africa in all the large rivers, from the frontier of the Cape Colony northwards to the cataracts of the Nile. But anciently its range was much wider, and it seems to have been familiar to the Egyptians on the Lower Nile. There is only one other species, *H. liberiensis*, on the western coast of Africa, distinguished by having only two incisors in the lower jaw. No hippopotamus is found in Asia, but there is no reason for asserting that it may not have had an eastern range as far as Palestine, and wallowed in the Jordan, for its bones are found in the *débris* of the rivers of Algeria, flowing into the Mediterranean, where tradition is quite silent as to its former existence.

Several extinct species of hippopotamus have been found in the later tertiary deposits, both of England and other countries of Europe, embedded in gravel which contains shells of many existing species of the locality, showing that the temperature has not much changed, and that some of the fossil species were natives of cold and temperate climates. The flesh of the hippopotamus is considered very good, and its hide, of enormous thickness (sometimes one and a half inches), is cut

into strips for whips, as it was by the ancient Egyptians.

Boar, Wild.—The Hebrew *chazîr*, like the Arabic *chanzîr*, is applied alike to the wild boar (*Sus scrofa* of naturalists), and to the domesticated swine, χοῖρος, in the New Testament. Where it occurs in the Holy Scriptures it usually refers to the tame animal, in one place only to the wild: "The boar out of the wood doth waste it, and the wild beast of the field doth devour it" (Ps. lxxx. 13). It must not be inferred from this solitary allusion that the wild boar was scarce in Palestine. It is, and doubtless always was, most abundant there, and two familiar

WILD BOAR.

points in its habits are mentioned by the Psalmist: its making its lair among the woods, and the devastation it commits in the vineyards.

Although abhorred as the most unclean of the unclean by both Moslem and Jew, it is eagerly chased and destroyed on account of the frightful ravages it makes among the crops. Not only does it devour any fruits within reach, but in a single night a party of wild boars will uproot a whole field, and destroy the husbandman's hopes for the year. The places they love to frequent are the reedy marshes and thickets by

rivers and lakes, and they swarm in the thickets all along the banks of the Jordan from Jericho to the Lake of Gennesaret. From these fastnesses, whence neither dog nor man can dislodge them, they make nightly forays upon the corn-fields and root-crops of the villagers, returning at daybreak to their coverts. About Jericho they are especially destructive, and when the barley crop is ripening, the husbandmen have to keep nightly watch to drive them away. Their presence can always be detected by the crashing noise they make in forcing their way through the thickets, when the men fire, guided by the sound.

Where we were encamped, several were thus shot, and we found both old and young delicious eating, bearing the same relation to pork that venison does to mutton. The flesh was rather dark, and so long as we had any in our larder we discovered another advantage: that we were secure from pilferers, so great is their horror of the unclean thing. When the Jordan overflowed its banks, a little before barley harvest, the wild pigs were driven up by hundreds from the river to the open country, secreting themselves by day either in any small thicket they could find, or even in caves and under bare rocks. At this time many were shot, being roused by the dogs, and then pursued in the open. So bold were they, that night after night they came close to our tents, perhaps tempted by the odour of food.

They are also plentiful near the Sea of Galilee, by the Waters of Merom, under Mount Tabor, about Mount Carmel, along the banks of the Kishon, and in the Plain of Sharon. We were surprised to find them also in the bare wilderness of Beersheba, where they tear up innumerable furrows in the herbage of the downs, subsisting on the roots of the asphodels, irises, and crocuses, which carpet the slopes and plains.

But nowhere are they so abundant as among the valleys of Moab and Gilead. The many streams, of which the Jabbok and the Arnon are the most important, which furrow that long chain of mountains and descend to the Jordan or the Dead Sea, are for the most part thickly shaded by a rich fringe of oleander. Among them, close to the never-failing water, the wild boar multiplies rapidly, and as we rode up the wadys they were never out of sight. Every few minutes they were put up, and

scampered up the hills, sometimes one or two huge old boars alone, more frequently a sow with a long train of little ones, all striped zebra fashion, black and yellow. Were the country east of Jordan more cultivated, the wild boars would be a perfect pest until their numbers had been reduced. Even under Hermon, in the vineyard districts, we heard grievous lamentations of the damage done to the vines by the boars, which devour not only the grapes, but also munch up the bearing shoots. The wild boar is a much more formidable-looking animal, as he charges with his huge shoulders, than he is usually depicted; but he never attacks unprovoked. When hard pressed, he is very dangerous both to man and horse, and the latter is often ripped up by his tusks in the chase.

The wild boar is a pachydermatous animal, unclean by the Mosaic law, because, though dividing the hoof, it does not chew the cud. It has an immense geographical range, extending throughout the whole of Europe and North Africa, through Asia, into Eastern Siberia and Persia, while the Indian wild boar is very closely allied to it, only differing in having a larger and more pointed head and smaller and more pointed ears. The European and West Asiatic boar has a stronger, heavier appearance than the Indian. Giebel considers there is but one species from Spain to China. [See also SWINE.]

BULL, WILD.—The Heb. *tô*, or *teô*, thus translated, occurs only twice. In the list of beasts that may be eaten, in Deut. xiv. 5, it is rendered "wild ox." In Isa. li. 20, we read: "Thy sons have fainted: they lie at the head of all the streets as a wild bull (*tô*) in a net." Scarcely any two commentators are agreed as to the exact species of wild animal intended by '*teô*.' From its position in the list in Deuteronomy, it must have been of the bovine or antelope class; and from the expression in Isaiah we may conclude it to have been extremely wild and untameable.

Buffaloes are now very common in Palestine, but they are the same as the Indian species, and there seems reason to believe that they were not introduced there till after the Khalifs overran Persia, and brought them back. They are employed as domestic cattle in the low-lying marsh lands, but there is no trace of their having ever existed there in a wild state, nor do we find them represented on the Egyptian monuments. The true wild bull

of the country, the extinct aurochs, is represented by another name, *reêm*. [See UNICORN.]

Nor can we reasonably identify the *tô* with the bison, which, though it probably existed to a late period in the Lebanon, could scarcely have been sufficiently known in the south country or the wilderness to be specially named among the animals used for food.

There remain, therefore, but the various species of larger antelope, formerly, no doubt, far more common in Palestine and the neighbouring countries, but of which three species at least are still found on its borders. These are the *Antilope leucoryx*, or oryx; the Addax (*Antilope addax*); and the Bubale (*Alcephalus bubalis*), the 'Bekk'r el wash' or 'wild cow' of the Arabs. There is some reason for believing the latter to be represented by the word rendered 'fallow-deer' in our version, and that the addax may be designated by the 'pygarg' of our Bible. Very possibly, therefore, the oryx may be taken to stand for the Hebrew *teô*. This is also the interpretation of the most important ancient versions.

ORYX.

The oryx is still found on the confines of the Holy Land, though strictly an inhabitant of the deserts, and, although

I never obtained it, I have been quite near enough to it to identify it by the shape of its horns. These are of immense length, sweeping towards its back in a wide curve, and often exceeding three feet in length. They are frequently to be purchased in the bazaars of Damascus. It is a large animal, standing between three and a half and four feet in height, and though rather heavy in build, has great speed, bounding and leaping like an ibex. Its lower parts, flanks, and face are of a sandy-white colour, with large darker patches of brown and tawny on its face, back, and flanks. Its horns, though so recurved, are a formidable weapon of offence, and when wounded and brought to bay, it will frequently pierce the hunter by a sudden and well-directed blow. The oryx is found throughout all North Africa, in the Sahara, Arabia, the Mesopotamian desert, and Persia. It does not seem to occur farther east. In the south of Africa its place is taken by the Gems-Bok (*Oryx gazella*), distinguished by its straight horns.

Camel, Heb. *gamal*, which name has been preserved with scarcely any alteration in Arabic, Greek, and all

CAMEL.

modern languages. The camel is the most valuable of all animals to man in the east, being the only creature

capable of supplying his wants in traversing the vast deserts of Arabia, North Africa, and Western Asia. We have no trace of the wild original, nor any clue to the period when it was first reduced to servitude by man. It must have been a native of Central or Southern Asia, and the bones of a fossil species have been found in the tertiary remains of the Himalayan region.

But in the earliest records of man we find the camel already enlisted in man's service. It was common in Mesopotamia and Egypt. In the latter country "Abram had sheep, and oxen, and he-asses. . . and she-asses, and camels," presents from Pharaoh (Gen. xii. 16). Jacob "had much cattle and camels" (xxx. 43), and gave Esau, among other gifts, thirty milch camels with their colts (xxxii. 15). They were then, as now, the carriers of the trading caravans to Egypt. The Ishmaelites, to whom Joseph was sold by his brethren, "came from Gilead with their camels, bearing spicery and balm and myrrh, going to carry it down to Egypt" (xxxvii. 25). Not the least item in the wealth of the patriarch Job was his 3000 camels, afterwards increased to 6000. The camels of the Egyptians were slain by the murrain in the plague of Egypt (Ex. ix. 3).

But it was especially in the regions east and south of Canaan that the camels were most numerous, as they are to this day. The Reubenites, in their wars with the Hagarites, the Arabs of the western Belka, took of their camels 50,000 (1 Chron. v. 21), and the powerful tribe of the Beni Sakk'r, who now inhabit that region, boast of 100,000 camels. So we read that when the Midianites and the Amalekites invaded Israel in the days of Gideon, "Their camels were without number, as the sand by the sea-side for multitude" (Judg. vii. 12). And in the picture given by Isaiah of the universal triumph of Christ's church in the latter days, the wild sons of the desert are described as coming in with their camels: "The multitude of camels shall cover thee, the dromedaries of Midian and Ephah" (Isa. lx. 6). Camels bore the spices and gold and precious stones that the Queen of Sheba brought to Solomon, and they formed part of the train of the Ethiopian invaders, defeated by Asa (2 Chron. xiv. 15), and were also used by the Syrians of Damascus (2 Kings viii. 9). David had a special officer to take charge of the royal camels, Obil the

Ishmaelite (1 Chron. xxvii. 30), whose charge probably pastured in his own native deserts, which then owned David's sway; and on the return from the Babylonish captivity Ezra and Nehemiah record the camels, then only 435 in number, which were possessed by the assembled congregation.

The camel was used for various purposes, not only for bearing burdens and for riding, as when Rebekah travelled from Mesopotamia to meet her future husband (Gen. xxiv. 64), and when 400 Amalekites escaped on their camels from David, after plundering the south of Judah (1 Sam. xxx. 17); but also for draught in agriculture—a use to which they are less frequently applied in modern times. In Arabia and North Africa the camel is still ordinarily yoked to the plough, but this service is in Syria almost always performed by the ox or the ass. We find in Isaiah an allusion to camels drawing chariots: "And he saw a chariot with a couple of horsemen, a chariot of asses, and a chariot of camels" (xxi. 7). I am not aware that the camel is now ever attached to wheel carriages, but as the prophet is in this passage describing the composition of the Median army, by which Babylon was to be overthrown, it is possible that he is speaking of a Persian, not of a Jewish, custom. Indeed, the anatomical structure of the camel does not adapt it so much for a beast of draught as of burden. "They will carry . . . their treasures upon the *bunches* of camels" (Isa. xxx. 6).

The great strength of the camel lies not in the propelling power of the shoulder, but in the sustaining power of the back, and especially of the hump called above 'the bunch.' To enable the camel to receive its load, by a special provision of Nature, it is formed to kneel down whenever it desires to rest, or to drink, and it also prefers feeding in this posture. Abraham's servant "made his camels to kneel down without the city by a well of water" (Gen. xxiv. 11). This habit of kneeling down is not merely the result of training; it is their natural posture of repose, as is shown also by the callosities upon the joints of the legs, and especially by that upon the breast, which serves as a pedestal to support the huge body.

The burden of the camel is generally adjusted to a huge framework or saddle upon and round the hump;

though the saddle for some of the swift dromedaries is fixed just in front of the hump. This great framework appears to be alluded to when we read that when Laban went to search for his stolen images "Rachel had taken the images, and put them in the camel's furniture, and sat upon them" (Gen. xxxi. 34). This *furniture* is the large basket bags attached on each side of the saddle, in which ladies and children sit to travel, as being less fatiguing than the flat surface on which the men are perched cross-legged. In the ample folds and hollow space of the frame there would be no difficulty in concealing any articles of tolerable size.

CAMEL.

The riding camels are frequently decorated, like the horses, with fantastic trappings, and especially with cowrie shells stitched on to the halter. Thus we read: "Gideon . . . took away the ornaments that were on their camels' necks;" or, as in the marginal translation, 'ornaments like the moon' (Judg. viii. 21). These crescent-shaped ornaments are in common use to the present day, formed generally of shells on red cloth, or by the sheikhs worn made of silver, sometimes so thickly studded as to jingle at every step. The camel is never ridden

with a bit, but with a halter attached to a noose round the nose, by which the animal is guided, though its natural obstinacy renders it very unmanageable when it is not following the line of the caravan. Either a trusty and docile camel must be selected as leader, or, in districts where horses can be used, the first camel's halter is held by a mounted horseman, who thus directs the whole caravan. The camels are also frequently ornamented with leather or cloth necklaces, on which the ornaments are stitched.

The camel is by no means an amiable animal, and its owner never seems to form any attachment to his beast, nor the animal to reciprocate kindness in any degree. I never found one camel valued above his fellow for intelligence or affection. A traveller always makes a friend of his horse, most certainly of his ass, sometimes of his mule, but never of his camel. I have made a journey in Africa for three months with the same camels, but never succeeded in eliciting the slightest token of recognition from one of them, or of a friendly disposition for kindness shown. Dr. Robinson gives the following very faithful account of the camel:—"Admirably adapted to the desert regions, which are their home, they yet constitute one of the evils which travelling in the desert brings with it. Their long, slow, rolling, or rocking gait, although not at first very unpleasant, becomes exceedingly fatiguing, so that I have often been more exhausted in riding five-and-twenty miles upon a camel than in travelling fifty upon horseback. Yet without them how could such journeys be performed at all? But their home is the desert, and they were made, in the wisdom of the Creator, to be the carriers of the desert. The coarse and prickly shrubs of the wastes are to them most delicious food, and even of them they eat but little. So few are the wants of their nature that their power of going without food, as well as without water, is wonderful. They never appear to tire, but commonly march as freshly at even ing as in the morning. . . . If they once begin to fail, they soon lie down and die. Thus, two camels of our train died between Suez and Akabah, which a few hours before had been travelling with full loads. In all our journey to Wady Musa the camels fed only upon shrubs, and never tasted grain of any kind, although once we had them loaded for thirty-six hours, during all which time

they browsed only for one hour. Their well-known habit of lying down upon the breast to receive their burdens. . . . is an admirable adaptation of nature to their destiny as carriers. . . . Hardly less wonderful is the adaptation of their broad-cushioned foot to the arid sands and gravelly soil, which it is their lot chiefly to traverse. The camel in very many respects is not unlike the sheep. They are a silly, timid animal, gregarious, and when alarmed, like sheep, they run and huddle all together. They are commonly represented as patient, but if so, it is the patience of stupidity. They are rather exceedingly impatient, and utter loud cries of indignation when receiving their loads, and not seldom on being made to kneel down. They are also obstinate, and frequently vicious; and the attempt to urge them forward is often very much like trying to drive sheep the way they do not choose to go. The cry of the camel resembles in a degree the hollow bleating of the sheep; sometimes it is like the howling of neat cattle, or the hoarse squeal of the swine. But the Arabs heed not their cries, nor does the poor animal find much mercy at their hands. Heavy and galling loads and meagre fare are his appointed portion, and God has hardened him to them. The camels of the Fellahin (husbandmen) appear to have an easier lot; they are mostly large, fat, and strong, while those of the Bedouin in the deserts are comparatively thin and slender. The singular power of the camel to go without water seems also to be of the same nature as that of the sheep, at least, in its manifestation, though in a far greater degree. The dew and the juice of grass and herbs are sufficient for them in ordinary cases, though, when the pasturage has become dry, the Arabs water their flocks every two days and their camels every three. The longest trial to which we subjected our camels with respect to water was from Cairo to Suez, four days; yet some of them did not drink even then, although they had only the driest fodder. But at all times the camel eats and drinks little; he is a cold-blooded, heavy, sullen animal, having little feeling and little susceptibility for pain. Thistles and briars and thorns he crops and chews with more avidity than the softest green fodder; nor does he seem to feel pain from blows or pricks, unless they are very violent.

"There is nothing graceful or sprightly in any camel,

old or young; all is mis-shapen, ungainly, and awkward. The young have nothing frisky or playful, but in all their movements are as staid and sober as their dams. In this respect how unlike the lamb!

"As the carriers of the East, 'the ships of the desert,' another important quality of the camel is their sure-footedness. I was surprised to find them travelling with so much ease and safety up and down the most rugged mountain passes. They do not choose their way with the like sagacity as the mule or even as the horses, but they tread much more surely and safely, and never either slip or stumble. . . . The sounds by which the Arabs govern their camels are very few and very guttural. The signal for kneeling is not unlike a gentle snore, and is made by throwing the breath strongly against the palate, but not through the nose. That for stopping is a sort of a guttural clucking which I never could master."—*Robinson's Researches*, vol. ii. pp. 208–210.

The provision of nature by which the camel is enabled to subsist so long without a fresh supply of water, consists in the large development of the honey-comb network, or tissue of cells, which lines the first stomach, and which receives and retains the water taken into the stomach after the natural thirst has been allayed. These honey-comb cells become largely dilated to receive the water.

The camel is not a swift animal. On good ground it will keep up a pace, when laden, of three miles an hour; but its average speed, taking into account rough or uneven ground and hills, does not exceed two and a half miles an hour, which is the ordinary calculation for travelling in the East. But this pace it will maintain for many consecutive hours. The dromedary, or finely-bred swift camel, will keep up eight or ten miles an hour when lightly mounted.

In two passages another Hebrew word, '*Beeer*, '*Bichrah*' (the masculine and feminine forms of the same noun), occurs, and is translated DROMEDARY "The multitude of camels shall cover thee, the dromedaries of Midian and Ephah" (Isa. lx. 6). "Thou art a swift dromedary, traversing her ways" (Jer. ii. 23). There is no doubt of the correctness of the translation, but the dromedary must not be imagined to be a

distinct species, but only the choicer *breed* of camels, differing from the camel as the race-horse does from the cart-horse. The dromedary is much taller and longer in the leg, is altogether of a more slender shape, and is frequently of a very light colour. It is distinguished in Arabia as the *Heirie* and in the Sahara as the *Maharik*. It is much less endurant of change of temperature than the ordinary camel, and cannot bear the cold of the coast. Eighty miles a day is its speed when pressed, though fabulous stories are told of its accomplishing 250 miles without a halt. The chief marks of the dromedary, besides its slender form, are the comparative smallness of the hump, and the strength and breadth of the shoulders, on which the saddle is often placed. For a camel its shape is really elegant.

There is only one species of true camel distinguished from the *Camelus dromedarius*. This is the two-humped camel (*Camelus bactrianus*), which is depicted on the Assyrian monuments, but to which there is no special allusion in Scripture, and which probably was unknown to the Jews until a late period of their history. Its powers of endurance are less, but of sustaining cold greater than those of the Arabian camel. It extends throughout Persia, Tartary, and China, and Central Asia generally. We never saw it in any caravans in Syria.

The flesh of the camel is eaten by all eastern nations. It is coarse and dry, much inferior to beef. I have often dined off it when nothing better could be had, but it is probably less savoury than horse-flesh. In Syria it is less esteemed than in Arabia and Africa, and is only cooked by the very poorest. By the Law of Moses (Lev. xi. 4; Deut. xiv. 7), it was forbidden as food, "because he cheweth the cud, but divideth not the hoof: he is unclean unto you," the division of the camel's foot being only partial. Camel's milk is very largely used, and is excellent. The Jews no doubt employed it, as their descendants in the East do now, while eschewing the flesh. Jacob presented Esau with thirty milch camels (Gen. xxxii. 15). The milk is rich and strong, but not very sweet. It is usually curdled and drunk sour, in which state it is both nourishing and refreshing, and to many a travelling Arab supplies both food and drink. Both butter and cheese are made from it, the new milk being churned for the former by being

poured into a leathern bottle and then beaten with a stick. The cheese is usually eaten fresh, and is very salt.

We read of John the Baptist being "clothed with camel's hair," "having his raiment of camel's hair" (Mark i. 6; Matt. iii. 4), and many have supposed that the dress of Elijah was similar. The hair of the camel, especially the coarser woolly tufts about the hump and back, is in some places torn off, but more generally, as I have observed, closely shorn once a year, and used for weaving into a coarse thick fabric by the Arab women. It is of this material that the "black tents of Kedar" are generally constructed, as it is much thicker and stouter than woollen stuff. It is very harsh and rough to the touch, and thus his dress was in accordance with the austerity of the rest of the Baptist's mode of life. There is also said to be a fine kind of soft fabric made of the carefully-selected under-wool of the camel, but this is a scarce luxury, dearer than the finest cloth of sheep's wool, and could not be the quality of raiment designated as worn by St. John.

Among a people so delighting in proverbs and metaphors as the Arabs, the camel has supplied an endless variety of proverbial expressions, which have been collected by various writers, *e.g.*, "Men are like camels; not one in a hundred is a dromedary;" "There are many old camels which carry the skins of young ones to be sold;" "The camel went to seek horns, and lost his ears." Two proverbs relating to the camel are used by our Lord: "It is easier for a camel to go through the eye of a needle, than for a rich man to enter into the kingdom of God" (Matt. xix. 24); "Ye blind guides, which strain at a gnat and swallow a camel" (xxiii. 24)—in both of which the force of the hyperbole is in its magnitude, and there is not the slightest occasion to explain away or amend the text in the former passage, where our Lord plainly states that the entrance of the rich man into heaven is impossible without Divine grace and assistance.

Cat.—The cat is not mentioned in either Old or New Testaments, but occurs in Baruch, where it is named among the animals that defile the idols of Babylon: "Upon their bodies and heads sit bats, swallows, and birds, and the cats also" (vi. 22). We know, both from Herodotus and from the mummies in Egyptian tombs, that the ancient Egyptians tamed and employed

cats. The species was probably the same as our own (*Felis domestica*), and derived from the wild cat of Nubia and Abyssinia (*Felis maniculata*). The Jews, from their intimate connection with Egypt, must have been acquainted with the cat, but we have no indication of their having employed it, and in the passage in Baruch it seems probable that wild cats are intended. It is curious also that, excepting in connection with Egypt, we have no allusion to the cat, now as world-wide in its distribution as the dog, in any classical authors either of Greece or Rome. The tame cat is now as common in Palestine as elsewhere; and there are also more than one species of

WILD CAT (*Felis chaus*).

wild cat, the most common of which is the booted cat (*Felis chaus*), represented in the plate, which is rather a lynx, with short bushy tail, black feet, and tufts of hair at the extremity of its ears. It is nearly double the size of our cat. Another wild, long-tailed species, the Syrian cat (*Felis syriaca*), more nearly resembles the wild cat of Europe.

CATTLE.—The words which express the different sexes, ages, and conditions of horned cattle, are as numerous in Hebrew as in English, though not always exactly synonymous. Thus we have (1.) '*Behemah*' for 'BEASTS' in general, often including other live stock of the hus-

bandman, as well as horned cattle: "Shall not their *cattle*, and their substance, and every beast of theirs be ours?" (Gen. xxxiv. 23). (2.) '*Bakar*,' CATTLE, OXEN; a collective name for a herd of neat cattle generally, without distinction of age or sex: "The people spared the best of the sheep and of the oxen, to sacrifice unto the Lord thy God" (1 Sam. xv. 15). It is almost always used collectively, though rarely for an individual, as in Isa. xi. 7: "The lion shall eat straw like the ox." It is, however, always applied to animals of full age, and fit for the plough, and might generally be expressed in English by 'herd.' '*Ben bakar*,' 'son of the herd,' is used in Gen. xviii. 7, for 'calf.' (3.) '*Shôr*,' AN OX, used for one head of cattle, without distinction of age or sex. It is translated BULL, COW, or CALF, according to the context. The Chaldee form '*tôr*' occurs in the later books of the Old Testament, whence the Greek ταῦρος, and the English '*steer*.' (4.) '*Par*,' BULL, '*Parah*,' COW; generally for a young bull or BULLOCK, and for a HEIFER or young cow offered in sacrifice. (5.) '*Aigel*,' CALF, or horned cattle of a year old and under, though occasionally of older cattle. (6.) '*Aigleh*,' a young cow or HEIFER; not necessarily one that has not had a calf, but one that has not yet been broken to the yoke. "Israel slideth back as a backsliding heifer" (Hos. iv. 16). (7.) '*Abîrîm*,' *i.e.*, 'strong ones,' is occasionally used for BULLS: "Ye are grown fat as heifers at grass, and bellow as bulls" (Jer. l. 11).

Horned cattle were by far the most important animals in the agricultural economy of the ancient Jews. They were employed in all the operations of husbandry, as the horse is among ourselves. They ploughed the land, they trod out the corn, they drew wheel carriages, and they bore burdens. The allusions to their uses are innumerable in Scripture. "Elisha, the son of Shaphat, was ploughing with twelve yoke of oxen before him, and he with the twelfth" (1 Kings xix. 19). "I have bought five yoke of oxen, and I go to prove them" (Luke xiv. 19). "Ephraim is as an heifer that is taught, and loveth to tread out the corn" (Hos. x. 11). "Make a new cart, and take two milch kine, on which there hath come no yoke, and tie the kine to the cart" (1 Sam. vi. 7). "They that were nigh them brought bread. . . . on mules and on oxen" (1 Chron. xii. 40). Their milk,

and butter, and cheese, were as important articles of diet of old as now. "They brought . . . . honey, and butter, and sheep, and cheese of kine, for David, and for the people that were with him, to eat" (2 Sam. xvii. 29); "A man shall nourish a young cow, and two sheep; and it shall come to pass, for the abundance of milk that they shall give he shall eat butter" (Isa. vii. 21, 22).

Especially important was their use in sacrifice, where they were offered by the richer worshippers, from the earliest times, as by Abram (Gen. xv. 9). During the sojourn in the wilderness cattle were not to be slain, excepting before the tabernacle, for an offering. This was to prevent their sacrificing to devils or idols (Lev. xvii. 7), but it had also the effect of securing the preservation of their flocks and herds for their use when they gained possession of the land of promise. But, as is still the case in eastern countries, flesh meat, especially of the larger kinds, was seldom used save on great occasions at special feasts, to do honour to a guest, or to celebrate a public or private anniversary. Bull calves were generally selected for the purpose. "Thou hast killed for him the fatted calf" (Luke xv. 30). "Abraham ran unto the herd, and fetched a calf tender and good (Gen. xviii. 7). The richer patriarchs had herds of cattle far beyond what were required for agricultural purposes, and which were kept for the table. Thus Job possessed originally 500 yoke of oxen, and in his latter days a thousand yoke. At the dedication of the temple Solomon offered a sacrifice of two and twenty thousand oxen (1 Kings viii. 63), and at its cleansing by Hezekiah 600 were sacrificed (2 Chron. xxix. 33).

Cattle were generally pastured in the open country, or in the forests, and during a great part of the year roamed as they do still in Southern Judæa, in a half-wild state.

Such were the bulls of Bashan in that wide pastoral region across the Jordan. But for the table, and in winter, the choicest animals were stall-fed. Thus we read that "Solomon's provision for one day was . . . ten fat (*i.e.* stall-fed) oxen, and twenty oxen out of the pastures" (1 Kings iv. 23). Stalled cattle are repeatedly referred to: "Better is a dinner of herbs where love is, than a stalled ox and hatred therewith" (Prov. xv. 17). Amos describes the luxurious, self-indulgent princes of Samaria as eating "the calves out of the midst of the

stall" (vi. 4). So, "Ye shall grow up as calves of the stall" (Mal. iv. 2), *i.e*, fat and sleek. And in many passages where our version reads 'fatted cattle' the Hebrew is 'cattle of the stall.' Our Lord inquires: "Doth not each one of you on the Sabbath loose his ox or his ass from the stall, and lead him away to watering?" (Luke xiii. 15).

But the cattle of Palestine are no longer tended with such care. Under indolent and oppressed owners, they have little fodder stored for them in winter, and are never taken up and fatted for the table. In spring they feast on the luxuriant herbage, and for the rest of the year crop such pasture as they may, wandering for water and grass, from one district to another. A few of the yoke-oxen alone have a scanty supply of barley-straw served out to them. This was their fare of old, for the art of making hay, in our sense of the term, has never been practised in the East: "The lion shall eat straw like the ox" (Isa. xi. 7). "The oxen likewise and the young asses that ear the ground shall eat clean provender, which hath been winnowed with the shovel and with the fan" (xxx. 24).

There are several provisions in the law of Moses for the protection and tending of cattle: "Doth God take care for oxen?" "Thou shalt not muzzle the ox when he treadeth out the corn" (Deut. xxv. 4). This injunction is twice quoted by St. Paul in the New Testament. With a similar regard for the welfare of the dumb beasts, the rest of the sabbath was especially extended to them, not only because they could not work without man's supervision, but also "that their ox and their ass may rest" (Ex. xxiii. 12).

The words 'oxen' and 'bullock' generally stand for 'bull' or young bull, and these animals have by no means the fierceness in Palestine which high feeding and close confinement have nurtured in bulls in our own country. A yoke of bulls may frequently be seen ploughing together, or bearing the yoke meekly on their necks as they wend their way homeward. Nothing can be more simple than the yoke by which they are attached to the plough or the cart. A simple straight beam is laid over the necks of the pair, slightly scooped out where it rests on the crest of the neck, and two stout supple sticks are bent into a semicircular shape and fas-

ened into the beam, fitting very loosely round the throat of each animal. The beam of the plough, or the pole of the cart, is attached to the centre of the yoke. Sometimes oxen are made to draw by a cord attached to their horns.

Though the ox is very gentle under the yoke, yet when the herds are turned loose to graze, and have long enjoyed their freedom in the forests or plains, the bulls frequently become rather wild, and the buffaloes, in particular, are not agreeable creatures for an unarmed stroller to meet alone. They are in the habit of gathering in a circle round any novel or unaccustomed object, and may easily be irritated into charging with their horns. This habit is alluded to in Ps. xxii. 12: "Many bulls have compassed me: strong bulls of Bashan have beset me round." There are several provisions in the law of Moses to provide for the cases of injury by a bull goring man or animal. Whenever it had gored a man or woman it was to be slain; and if it were proved that the owner had been warned of its dangerous habit, and had not kept it in, his life also was forfeit. (See Ex. xxi. 28–36.) The cattle in Gilead, and in the wilderness, will vigorously defend themselves against the attacks of wolves, hyænas, and other wild beasts, by forming themselves into a circle with the cows and calves behind them.

Horned cattle are by no means universally spread over the country. They are only suited to districts where the water is easily accessible, and where fresh pasture can be obtained throughout the year. In the Sinaitic peninsula, even in those parts where there are not only camels, but horses, sheep, and goats, neat cattle are unknown. Then in the southern wilderness of Judah, on the downs and bare prairies, to the south and east of Beersheba, and in all the Plain of Philistia, they are very numerous, and their appearance is very striking to the traveller who has been for some time in the hill country of Hebron, and the eastern wilderness adjoining the Dead Sea, where they are never seen. These herds, which are rarely used for agriculture, are of very small size, not much larger than the horned Scotch cattle, and resembling them in general appearance, but with much shorter horns. They are shaggy, short-legged, and small in the hams, but deep in the fore quarters. Their colour is black or brown, sometimes red, but rarely piebald, and very seldom with any white.

In the maritime Plains of Sharon, Acre, and Phœnicia, and in that of Esdraelon, is found a large variety of the same breed, from which the southern cattle have probably degenerated. They are better cared for, and are accustomed to the yoke, all the agricultural operations of these districts being performed by them.

In all the central districts of Palestine, from Hebron up to the Lebanon, neat cattle are rare, excepting on such plains as those of Dothan and Shechem. The pastures are few, and burnt up in summer, and the agriculture of the terraced hills is not adapted for their use. Goats supply the milk and butter of these regions, and beef and veal are unknown delicacies.

In the north of the country, in the richer parts of Galilee, may occasionally be seen very fine cattle, of a quite distinct breed, and of very large size, which are there called the Armenian cattle. They are generally light-coloured, recalling the Tuscan ox, and bearing some resemblance to the Hereford breed, but with shorter horns. They seem to belong to the same race which is represented on the Egyptian monuments, and which is still the finest breed on the banks of the Nile. In the richer parts of Northern Syria, and near Damascus, these large cattle are more common.

In the wild countries east of Jordan, Southern Bashan, Gilead, and Moab, neat cattle form the principal wealth of the Arabs and of the few settled villages, until we reach the desert itself. The breed is the same as that of Southern Judæa, but of a larger size, and generally black. Their milk and butter is very rich and abundant, for the forests preserve the verdure of the glades throughout the year, so that the milch kine do not go dry as in the south.

In the Ghor, or Jordan valley, another species of cattle, quite distinct from the *Bos taurus*, the Indian buffalo (*Bos bubalus*), takes the place of the common ox. It is incapable of flourishing excepting in marsh land, where it wallows during the day buried up to the neck in water or mud. It is, however, utilized by the Arabs near the Waters of Merom for ploughing. It is a huge ungainly creature, very ill-tempered, and frequently dangerous, always black, and with a rough short coat, which is often bare in places. It does not appear to have been known to the ancient Israelites, and was probably intro-

duced through Persia at a later period. Its milk is considered richer than that of the cow, but is deficient in quantity. There is no trace of the Indian humped cattle in Palestine.

In the bone caves of the Lebanon we discovered the teeth of two extinct species of the ox tribe, belonging probably to *Bos primigenius*, or the aurochs, and *Bison priscus*. [See UNICORN.]

The worship of Apis, or the bull-god of Egypt, is well known, and had become deeply engraven in the imagination of the Israelites. Whether they also associated it with the symbol of the cherubim, which many learned men maintain to have been in the form of an ox, is not quite clear. But there can be no doubt that they adopted it both in the wilderness, and afterwards under Jeroboam, not as the symbol of a false god, but as the emblem or figure of Jehovah. Thus Aaron proclaims: "To-morrow is a feast to the Lord" (Ex. xxxii. 5); and Jeroboam is not condemned for introducing the worship of a Baal or an Apis, but for setting up the calves as images of the LORD, in whose name his prophets still continued to speak. The idea of the symbol may have been suggested by Jeroboam's residence in Egypt, but he seems to have appropriated it professedly to Jehovah. The expression "So will we render the calves of our lips" (Hos. xiv. 2) signifies, we will render the 'sacrifice' of our lips, the 'calf' being used for an acceptable offering.

CHAMOIS. Heb. *zemer*.—In the list of the clean animals permitted as food in Deut. xiv. 5, the '*zemer*' occurs, and nowhere else in Scripture. From the Arabic '*zamar*' we conclude that some *leaping* animal is intended. It cannot be the chamois, of the existence of which there is no trace in Bible lands. Nor can it be the giraffe or cameleopard, an animal of Central Africa, which is the interpretation of some ancient commentators. As other words designate the rock-goats or ibex, and the various antelopes, it is probable that *zemer* is applied to the wild mountain sheep, called *kebsch* in Arabia and *aoudad* in North Africa, very like the *mouflon* of Sardinia.

The wild sheep is gray, like a goat, and is considered such by the Arabs. The North African species, or aoudad (*Ovis tragelaphus*), lives in small flocks in the most rugged districts of the Atlas mountains, extending from Barbary

to the frontiers of Egypt. It is depicted on Egyptian monuments. The *kebsch* of Arabia Petræa is probably identical with it, but, though well known to the Bedouin, no specimen has hitherto been secured by any naturalist. Doubtless the animal was far more common in ancient times, as it evidently was in Egypt, and hence would naturally be named among the animals fit for food in the Mosaic law. The mouflon (*Ovis musimon*) is very closely allied to it; and though now found only in Sardinia, Corsica, and Cyprus, it, or allied forms, were formerly common in Spain, the Greek mountains, and across Circassia to Persia, where it is said still to exist. It may therefore be presumed to have extended to the Lebanon.

MOUFLON.

The aoudad is wonderfully active, bounding from rock to rock, and often lighting on its enormous horns, which are very massive, and two feet in length, curving gently backwards. It is more than three feet in height, and, though without a mane, has very long hair down its throat and breast, and on the fore legs, forming a sort of ruffles, which extend to the knee. Though I have frequently seen it in the Atlas mountains, I never succeeded in finding it in Western Asia.

CHAPTER V.

Mammals.—Part II.

Coney. Heb. *shaphan; Hyrax syriacus* of naturalists.—The Hebrew name signifies 'the hider,' and it is known in Southern Arabia by a similar name, '*thofun*,' though in Palestine and Sinai it is called '*weber*.' It must not

CONIES

be confounded with the rabbit, sometimes called the coney in England, for no species of rabbit is found in Palestine or Arabia. It was forbidden as food to the Israelites. "The coney because he cheweth the cud, but divideth not the hoof; he is unclean unto you" (Lev. xi. 5; Deut. xiv. 7). In Ps. civ. 18, we read: "The high hills are a refuge for the wild goats, and the rocks for the conies;" and in Prov. xxx. 24, 26, "There be four things which are little upon the earth, but they are exceeding wise. . . . The conies are but a feeble folk, yet make they their houses in the rocks."

The hyrax or coney is a very singular creature stand-

ing quite alone in its structure and anatomy. Although no bigger than a rabbit, and clothed with fine soft fur, it is neither a ruminant nor a rodent, but is classed by naturalists between the hippopotamus and the rhinoceros. Yet in its habits and manners it is very like a rabbit. It has a round head, short round ears, a tail which is so short it can scarcely be detected at all; its fur is a reddish brown or tawny, with a single oblong pale spot on the centre of its back, and lighter on its belly. All over its body a few long black hairs stand out from the fur. Its incisor teeth are conspicuous, chisel-shaped, exactly like those of the hippopotamus. It has no claws, but the four toes of its fore feet and the three of its hind feet are furnished with tiny hoofs, shaped like those of the river-monster. There are only three species known: one in South Africa, another in Abyssinia, and the third the Syrian hyrax.

Some difficulty has been raised respecting the prohibition in Leviticus, where the coney is forbidden as food, though 'he cheweth the cud,' whereas it is not a ruminant at all. The Hebrew word, however, merely means 're-chew,' and does not necessarily imply the possession of a ruminant stomach. But the lawgiver speaks according to appearances, and no one can watch the constant motion of the little creature's jaws, as it sits continually working its teeth, without recognizing the naturalness of the expression.

The habits of the coney are very accurately portrayed in the Psalms and in Proverbs. It does not, like the rabbit, scoop out a burrow for itself, but lives in holes in the rocks, where it makes its nest and conceals its young, and to which it retires at the least alarm. They are a feeble folk, and though they will attempt to bite when seized in their holes, yet their efforts are not very formidable. But their wariness is great. "They are exceeding wise." Being in some degree gregarious, they never feed without having sentries on the look-out, and, on the approach of danger, a short squeak from the look-out sends the whole party instantly to their retreat. The Rev. F. K. Holland, who observed them in Sinai, writes: "Though I several times saw single conies in Sinai, I only twice came upon any large number together. Once, when crossing a mountain pass, I was startled by a shrill scream near me, but

could see nothing. On my return in the evening, I approached the place cautiously, and saw eight conies out, playing like rabbits. I watched them for some minutes before they saw me. At length one caught sight of me, and immediately uttered its scream, and all at once rushed to their holes. On another occasion I saw about twelve out feeding at a different spot, but on neither occasion did I see any appointed guard. They had runs like rabbits leading some little distance from their holes."

The coney has been supposed to be very rare in the Holy Land, though common in Arabia Petræa. We, however, found it in many parts, and in some plentiful. It inhabits the gorge of the Leontes, in Northern Galilee, the Ladder of Tyre, south of the Plain of Phœnicia, the Wady Kurn, leading out of the Plain of Acre. It is extremely common in the gorge of the Kedron, from Marsaba eastward, and all down the west side of the Dead Sea. In all the places named we detected it ourselves. They are but a feeble folk, but in these districts the stony rocks are their refuge, and tolerably secure they are in them. No animal ever gave us so much trouble to obtain. They are far too wary to be taken in traps, and the only chance of securing one is patiently to lie concealed, about sunset or before sunrise, on some overhanging cliff, taking care not to let the shadow be cast below, and there to wait till the little creatures cautiously peep forth from their holes. I had the good fortune to see one feeding in the gorge of the Kedron, and there to watch it as it sat at the mouth of its hole ruminating, metaphorically if not literally, while waiting for sunset. Our Arabs obtained several other specimens for us near the Dead Sea.

We got one with six and another with three young; and four seems to be the ordinary number at a birth.

They make a nest of dried grass and fur, in which the young are buried like those of a mouse. The flesh is much prized by the Arabs. We found it good, but rather dry and insipid, as dark in colour as that of the hare. It is said in winter to feed only at noon, and at other times at dawn and sunset. We saw them at all times of the day, but mostly in the early morning, and in this respect they seem very closely to resemble the rabbit.

Dog. Heb. *keleb;* Arab. *kelb* (*Canis familiaris*). Among the Jews of old, as among the Mohammedans at present, the dog held a very different position from that which obtains among ourselves as the friend and companion of man. He was, indeed, in some degree domesticated, and employed by man in his service, and as such was allowed a certain degree of familiarity, being tolerated rather than encouraged about the house and table of his master. One reason of this probably was, that the Jews, not being a hunting people, did not utilize the instinct of the dog for the pursuit of game, while the Egyptians had several

SYRIAN DOGS.

races of dogs prized for different purposes, some being trained for hunting, others merely kept as domestic pets. Dogs were used for guarding the flocks: "Whose fathers I would have disdained to have set with the dogs of my flock" (Job xxx. 1), but not, as with our shepherds, for driving them, only for protecting them from the attacks of wolves and jackals by night.

They were also encouraged in towns and villages as the common scavengers, clearing away carcases and offal that might otherwise create pestilence: but the individual instinct and fidelity of the dog was never cultivated, though allowed to enter the house and "eat of the

crumbs which fall from their masters' table" (Matt. xv. 27). Not only from its being ceremonially unclean, but from the filthy nature of its food in Oriental towns, it was regarded with aversion and disgust: "He that sacrificeth a lamb as if he cut off a dog's neck" (Isa. lxvi. 3). "Give not that which is holy unto the dogs" (Matt. vii. 6). In fact, though the dog is mentioned nearly forty times in Scripture, there is scarcely a single instance in which it is not spoken of with more or less of contempt or aversion. So the Jews applied the epithet 'dog' contemptuously to Gentiles, as all Mohammedans do now to Christians.

It was also used as a term of the most abject humility when applied by the speaker to himself, in the presence of a superior: "The Philistine said unto David, Am I a dog that thou comest to me with staves?" (1 Sam. xvii. 43). "After whom dost thou pursue? after a dead dog?" (xxiv. 14). "Am I dog's head . . . that thou chargest me to-day with a fault concerning this woman?" (2 Sam. iii. 8). "That thou shouldst look upon such a dead dog as I am" (ix. 8). "Why should this dead dog curse my lord?" (xvi. 9). "Is thy servant a dog, that he should do this great thing?" (2 Kings viii. 13).

Every Oriental city and village abounds with troops of hungry and half-savage dogs, which own allegiance rather to the place than to persons, and which wander about the streets and fields, howling dismally at night, and devouring even the dead bodies of men when they can reach them. Their habit is most exactly described by the Psalmist: "At evening let them return; and let them make a noise like a dog, and go round about the city. Let them wander up and down for meat, and grudge if they be not satisfied" (Ps. lix. 14, 15). "In the place where dogs licked the blood of Naboth shall dogs lick thy blood" (1 Kings xxi. 19). "The dogs shall eat Jezebel by the wall of Jezreel. Him that dieth of Ahab in the city the dogs shall eat" (ver. 23, 24). Thus cruel, fierce, and filthy persons are frequently compared to dogs (Ps. xxii. 16; Phil. iii. 2; Rev. xxii. 15).

The dogs in the East keep up an incessant howling and barking in the night, as mentioned above, but jackal-like, they are generally afraid of man, and, uncared for as they are, canine madness is a disease unknown among them.

The common dog of the towns is the same breed as that of the shepherd, often in India called the Pariah dog, and probably the nearest in appearance to the wild original, not unlike the jackal, with short sharp-pointed ears, sharp snout, generally a tawny coat and tail, scarcely bushy. It much resembles in form and size the shepherd's dog, or 'colley,' of the north of England.

Neglected as it is, it is not wanting in intelligence and docility. I possessed for some time a dog of this species, which we took from the streets of Beyrout when a mere puppy. It showed the warmest attachment to its friends and to all our party, discriminating them at once from strangers; and, while intimate with all the horses and asses of our convoy, would not tolerate the intrusion of a stranger. It had no attachment to places, but followed its master everywhere, and had great discrimination in selecting a place for camping, always unmistakably intimating where it thought the tents should be pitched, and expressing great disgust when we chose to proceed farther than it considered to be a sufficient journey for the day. It felt the dignity of its position, and refused to consort with the street dogs of any place through which we might be passing.

These facts show the natural docility of the dog, even after ages of neglect, if indeed its ancestors were ever more reclaimed than it is at present.

No other breed of dogs is known in Palestine, save such as are introduced and kept by Europeans, excepting the Persian greyhound, a very different animal from the town dog, and very highly prized by the desert sheikhs, who use it for the chase of the gazelle. It is of the shape of our greyhound, but larger and stronger, with long silky hair on the ears and belly, and a long pendent fringe of the same fine hair on the tail. Inferior in speed, it far surpasses our greyhound in endurance, and alone it can frequently run down the gazelle.

DRAGON.—Two distinct Hebrew words are thus translated in our version —*tannin* [see DRAGON, Chap. IX.], and *tan*, which is always used of some animal inhabiting the desert, probably the jackal [which see].

DROMEDARY.—Several Hebrew words are thus translated. (1.) *Bicrah*, a dromedary, or finely-bred and swift camel (Isa. lx. 6; Jer. ii. 23). [See CAMEL.] (2.) *Recesh*, rendered 'dromedaries' (1 Kings iv. 28)

[marg., mules or swift beasts]; and 'mules' in Esth. viii. 10, 14. The same word occurs in Micah i. 13: "O thou inhabitant of Lachish, bind the chariot to the swift beast" (Heb. *recesh*). The word signifies 'a swift horse' of a peculiar and noble breed, particularly a stallion. It is derived from a verb, meaning 'to gallop.' (3.) In Esth. viii. 10, *Beni-rammac* is translated 'young dromedaries.' It only occurs in this passage, but is the same word as the Arabic *ramkah*, 'a mare.' The translation should therefore be 'sons of mares,' 'young horses.'

ELEPHANT.—Though the name of the elephant does not occur in our version, excepting in the Apocrypha, yet the valued product of that animal, ivory, is repeatedly mentioned. In most passages the word for 'ivory' is *shên*, *i.e.*, 'tooth,' but in one place the elephant is really named specifically, for in 1 Kings x. 22 we read: "Once in three years came the navy of Tharshish, bringing gold and silver, ivory [Heb. *shên-habim*, *i.e.*, elephants' teeth], and apes, and peacocks." The word *habim* (elephants) was long a puzzle to etymologists, but recently it has been shown that the names given both for apes, peacocks, and ivory, in this passage, are Indian words, and actually preserved in the vernacular languages of Malabar and Ceylon to this day. 'Habba' is also applied to the elephant in the Assyrian inscriptions.

The expression 'elephants' teeth' shows that the Jews of Solomon's time were aware of the fact that the ivory was procured from the tusk, not from the horn, of an animal, though we read in the description of the merchandize of Tyre: "The men of Dedan were thy merchants . . . they brought thee for a present horns of ivory and ebony" (Ezek. xxvii. 15). But here the term horn is merely applied to the shape of the tusk, not to its growth, and the expression is literally 'horns of tooth.'

Though Solomon himself procured ivory from India by sea, the Tyrians obtained it, as we see from the passage in Ezekiel, overland, by the traders from the Persian Gulf, the men of Dedan, a tribe of merchant traffickers, settled somewhere in the desert of Mesopotamia. The Egyptians, on the contrary, obtained it principally from Ethiopia, as we learn from Herodotus; and they also paid their tribute to Cambyses and the Persian kings in African ivory tusks.

The earliest allusion to the use of ivory among the Jews is in the time of David: "Out of the ivory palaces, whereby they have made thee glad" (Ps. xlv. 8). But among the Greeks it was in use at an even earlier period, as it is repeatedly mentioned by Homer and Hesiod. The 'ivory palaces' probably mean boxes or chests veneered with ivory (an art in which the Phœnicians excelled), and in which the robes of the wealthy were stored with perfumes, 'myrrh, aloes, and cassia.' The great throne of Solomon was made of ivory, and overlaid with the best gold (1 Kings x. 18–20; 2 Chron. ix. 17–19). This was no doubt the work of Tyrian artificers, and is the first large structure on record veneered with ivory. The expression in Canticles, "Thy neck is as a tower of ivory" (viii. 4), seems to be merely a poetical figure not necessarily supplied by the existence of such an actual tower.

In after times the use of ivory became more general among the luxurious. Thus, Ahab made an ivory house (1 Kings xxii. 39); *i.e.*, inlaid the chambers of one of his palaces with ivory—a piece of sumptuous magnificence which was imitated by others. "The houses of ivory shall perish, and the great houses shall have an end, saith the Lord" (Amos iii. 15).

Ivory was used also for inlaying couches. Amos denounces woe to them that are at ease in Zion, and lie upon beds of ivory (vi. 4).

The galleys of the Phœnicians had their benches or hatches ornamented with ivory inlaid work: "The company of the Ashurites have made thy benches of ivory, brought out of the isles of Chittim" (Ez. xxvii. 6). Many specimens of ivory ornaments have been found both in Nineveh, especially a sceptre and inlaid tablets, and also in the earliest monuments of Egypt. The art of inlaying ivory is still practised by the inhabitants of Sidon, whose skill is in high repute at Damascus. Chests inlaid with ivory are still used there, and I have seen a chamber in the house of a wealthy Damascene panelled with alternate veneers of ivory and ebony to the height of three or four feet from the floor, thus illustrating the ivory houses of Ahab, and of the prophecy of Amos.

Elephants were first brought into Palestine by Antiochus Epiphanes, king of Syria, who used them in his war against Ptolemy, king of Egypt, and afterwards against

the Jews. We read he brought into the field "two and thirty elephants exercised in battle . . . and to the end they might provoke the elephants to fight, they showed them the blood of grapes and mulberries . . and upon the beasts there were strong towers of wood, which covered every one of them, and were girt fast unto them with devices; there were also upon every one two and thirty strong men that fought upon them, beside the Indian that ruled him" (1 Macc. vi. 30, 34, 37). In the battle that ensued, Eleazar, the brother of Maccabeus, valiantly sacrificed himself, rushing under the largest of the elephants and killing it from below, when it fell on him and crushed him to death. Subsequently the elephants are frequently mentioned.

The two species of elephant, the Indian (*Elephas indicus*) and the African (*E. africanus*), are well known. The ivory of the former is much inferior in size to that of the latter, and while of the Asiatic species only the males are furnished with tusks, both sexes of the latter, unfortunately for themselves, possess these precious appendages, and a pair of tusks will often weigh 140 pounds. The Indian elephant was the one employed by Antiochus, and is alone tamed at the present day, though there is reason to believe the ancient Egyptians reclaimed the African species. The two kinds can be at once discriminated by the enormous size of the ears of the African elephant.

Fallow-Deer. Heb. *yachmûr*.—The name of an animal permitted as food by the Mosaic law (Deut. xiv. 5), and was also part of the provision supplied to Solomon's table (1 Kings iv. 23). The '*yachmûr*' has been identified with several species of the deer and antelope tribes, but the best critics agree in referring it to a species of antelope well known in the desert districts of the Bible lands, the bubale (*Alcephalus bubalis*), the '*Bekk'r el wash*,' or 'wild cow' of the Arabs, a species very like the hartebeest of South Africa. The bubale was well known to the ancients, who describe it as something between a calf and a stag: and indeed its short horns, long head, and heavy build give it a very bovine appearance. The Arabian writers were also well acquainted with it, and have left long descriptions, which have been collected and translated by Bochart. It was also hunted for its venison by the ancient Egyptians, and is represented on their

monuments. It is distinguished by the Orientals from all other antelopes, and classed by them among cattle.

The range of the bubale is extensive, through all North Africa, from Morocco to Egypt, and across into Arabia, where, indeed, most of the North African desert animals are also found. It lives in small herds. I never myself found it in Palestine, but the Jehalin Arabs knew it well by its North African name, and assured

BUBALE.

me they often obtained it when it came to drink at the streams on the east side of the Dead Sea. In ancient times it was evidently a much more common animal than now; and even in the Atlas mountains it has become nearly extinct since Dr. Shaw in the early part of the last century described it as very common there.

The fallow-deer (*Dama vulgaris*) is very rare in Palestine, and does not appear ever to have been common. In

Arabia it does not exist. A few still are to be found in the wooded glades between Mount Tabor and Lebanon, a district seldom disturbed by travellers. I only once met with it not far from the Sea of Galilee; and Hasselquist noticed it on Mount Tabor. Its teeth have also been found in the bone caverns of the Lebanon. In Armenia and Northern Persia, supposed to be its native country, it is still common. But its need of wood and water must have prevented its extension at any time into the southern regions towards Sinai. It is therefore scarcely probable that it was named by Moses.

Ferret.—The translation in Lev. xi. 30 of the Hebrew *anâkah*, one of the unclean creeping things forbidden as food. It is agreed on all sides that 'the ferret' is not intended. The Septuagint translates it *μυγάλη*, 'shrew-mouse.' There are several species of shrew-mouse in Palestine. Three were collected by ourselves, and there are, doubtless, various other kinds. The common shrew (*Sorex araneus*) is common in Galilee. We found a very beautiful diminutive shrew (*Sorex pygmæus*), about one-third the size of the common, in the Wilderness of Judæa, and also a pretty silver-grey larger kind (*Sorex crassicaudus*) in the desert. The Rabbinical writers have identified *anâkah* with the hedgehog, which is common enough in all parts of the Holy Land, but which would not be classed with 'the creeping things,' but as a small porcupine. There is good reason for preferring the rendering 'lizard,' or 'gecko,' a species of lizard, to any other interpretation of *anâkah*. [See Ferret, Chap. IX., Reptiles.]

Fox. Heb. *shû'al*, Gr. *ἀλώπηξ*.—The Hebrew word undoubtedly includes the jackal (*Canis aureus*), as well as the fox (*Vulpes vulgaris*). Indeed, in most of the passages where it occurs, the jackal, rather than the fox, is intended, as may be seen from the context. The Hebrew *shû'al*, Arabic *jakal*, the Persian *shagal*, and the English *jackal*, are all the same word.

At the same time, there is another name, *îyîm*, specifically applied by the Hebrews, as *wawi* by the Arabs, to the jackal. But the two animals are commonly confounded, or spoken of together, by the natives of Syria, though they are perfectly aware of their distinctness.

The fox is common in Syria, and is to be found everywhere, especially about ruins, and, towards even-

ing, may often be started before the jackals are afoot. The common fox of the south, and of the central country, is the Egyptian fox (*Vulpes nilotica*), which differs very slightly from our own, being a little smaller, with a greyer hue below and more tawny above. In the north of Palestine we found the Syrian fox, a larger and stronger animal, which I take to be the *Vulpes flavescens* of Dr. Gray, the *Canis syriacus* of Colonel H. Smith. I cannot consider it as anything more than a local form or variety of the common fox of Europe. Specimens of

FOX.

both are in the British Museum. The natives do not discriminate them, and call them *Thaleeb*, distinguishing the jackal as *Dheeb*.

The character and habits of the eastern fox no way differ from those so well known in other countries; but, from necessity probably, they are less exclusively carnivorous than in England. Thus, "Take us the foxes, the little foxes that spoil the grapes" (Cant. ii. 15). The fondness of the fox for grapes is well-known in the East; but not less so that of the jackal, which, going in packs, often commits great devastation in the vineyards. Both animals are, like the dog, omnivorous. Thus, in

many parts of North Africa, where the jackals swarm, there is no possibility of obtaining flesh or carrion, and they subsist habitually on the fruit of the dwarf palmetto, with which the plains are often covered.

The cunning of the fox caused it to be a fitting term of reproach for the false prophets: "O Israel, thy prophets are like the foxes in the desert" (Ez. xiii. 4). Thus, also, our Lord rebuked the duplicity of Herod: "Go ye, and tell that fox" (Luke xiii. 32). Its habit of burrowing, especially among rocks or ruins, is more than once alluded to: "Foxes have holes, and the birds of the air have nests; but the Son of Man hath not where to lay his head" (Matt. viii. 20). "If a fox go up, he shall even break down their stone wall" (Neh. iv. 3). And its resorting to desolate places: "The mountain of Zion, which is desolate, the foxes walk upon it" (Lam. v. 18); though here the jackal is more especially indicated. So it is, also, in Ps. lxiii. 10: "They shall fall by the sword; they shall be a portion for *shû'alim*;" for the fox is not an habitual carrion feeder; while the jackals follow caravans, and attack graves for the carrion, which is their favourite dainty.

One great difference between the jackal and the fox is, that the former hunts in packs, while the latter prowls singly for his prey, which he takes by stratagem. Accordingly, where we find that "Samson went and caught 300 *shû'alim*, and took firebrands, and turned tail to tail, and put a firebrand in the midst between two tails" (Judg. xv. 4), the *shû'alim* are evidently *jackals*, and not *foxes;* for, while he could not have caught so many of the latter, he might easily have 'snared,' as the Hebrew expresses it, 300 jackals, which hunt in large packs, and which are still most numerous in Southern Palestine. It is not necessary to assume that the whole 300 were caught at once, or turned loose in the same place; but rather that Samson, having taken them, turned them loose in many different places, so as to make 150 incendiary fires, and to cause the widest possible injury to the standing crops of the Philistines. The brands would be attached at some distance from the tails of the animals, and jackals, accustomed to run together, would not, unless very tightly fastened, pull in opposite directions, as foxes or dogs would; but the terrified animals would, so soon as ever they were let go, rush as far as possible from their

captor, and carry the devastation far and wide before the brand was extinguished.

GAZELLE.—This animal, though extremely abundant in all parts of Palestine, is not mentioned under this name in our version, but is referred to under the word rendered ROEBUCK [which see].

GOAT.—The ordinary Hebrew word for goat is *'éz*, which signifies the goat generically, whether he or she-goat. There are also several other words to denote a he-goat of different ages, or the leader of a herd of goats. Thus *tzapheer*, 'an old he-goat,' is used as the symbol of the Macedonian empire: "Behold an he-goat came from the west on the face of the whole earth, and touched not the ground: and the goat had a notable horn between his eyes" (Dan. viii. 5). The word is elsewhere used in the later books of the Old Testament for a he-goat offered in sacrifice. *Sa'eer*, 'a hairy goat,' is frequently used in the Pentateuch, for a full-grown goat offered in sacrifice, but is generally employed to signify a kid. *'Atood* is the common word for the he-goat, which is the leader of the herd; and all herds of goats, however small, have some one leader, whose movements are followed by all the others. Thus, "Go forth out of the land of the Chaldeans, and be as the he-goats (*'atoodim*) before the flocks" (Jer. l. 8). "It stirreth up the dead for thee, even all the chief ones [Heb. he-goats] of the earth; it hath raised up from their thrones all the kings of the nations" (Isa. xiv. 9). "Mine anger was kindled against the shepherds, and I punished the goats (*'atoodim*)" (Zech. x. 3).

Generally, in the prophetic books, where the word 'goat' occurs, *'atoodim* is the term used in the Hebrew, often in conjunction with 'rams': "I will offer bullocks with goats" (Ps. lxvi. 15, and l. 10, 13).

Another name for the he-goat is *tayish*, the 'butter,' or 'striker.' "There be three things which go well; yea, four are comely in going . . . a greyhound; an he-goat (*tayish*) also; and a king, against whom there is no rising up" (Prov. xxx. 29, 31). It is found only in three other passages, but is also the Arabic name for he-goat at the present day. The stately march of the he-goat before the herd, and his haughty bearing, as well as the dauntless stare with which he scrutinizes a stranger, are well-known to all familiar with the East; and the he goat is

still commonly applied by the Arabs as a simile for dignity of manner and bearing.

Goats formed an important item in the wealth of the patriarchs, and were used for food and for sacrifice. Abraham offered a she-goat in sacrifice. Among the presents sent forward by Jacob to propitiate his brother Esau were two hundred she-goats and twenty he-goats (Gen. xxxii. 14). Nabal possessed three thousand sheep and one thousand goats (1 Sam. xxv. 2); and goats formed a considerable portion of the possessions of Laban, and of the wages of Jacob (Gen. xxx. 33).

Goats are only adapted for hilly countries, or pastures where there is much brushwood; and in such districts they supersede in Palestine the horned cattle of the plains. For the downs and short herbage of Arabia they are not so well adapted as sheep; but on reaching the southern wilderness, where many dwarf shrubs vary the herbage, goats are to be seen in large flocks. To the thirsty plateaux of Arabia they are unsuited, and are not mentioned among the possessions of Job. In the rich maritime plains, the herbage is too succulent for their taste. The hilly district which extends from Hebron, up the centre of Western Palestine, to the Lebanon, is of all others that most adapted for goats; and in this country they have been largely reared from the earliest times.

The sheep and goats are here always seen together under the same shepherd, and in company: yet they never trespass on the domain of each other. The sheep, as they traverse the hill-side, graze closely the tender herbage and the grass which carpets the soil: the goats, generally filing in long lines a little above them, skip from rock to rock, and browse the tender twigs and the foliage of the thymes and dwarf shrubs.

This constant browsing of goats is one of the causes which has prevented the restoration of the forests, even in the most deserted parts of the Holy Land. Indeed, they have extirpated many species of trees which once covered the hills, and which must now be sought for on the east of Jordan or on Lebanon. Thus, we know that within the present century, after the ebony forests had been cut down in the island of St. Helena, the goats completely extirpated the young plants, until the tree has become utterly extinct.

Yet, though the goats thus mingle with the sheep,

there is no disposition on either side for more intimate acquaintance. When folded together at night, they may always be seen gathered in distinct groups; and so, round the wells they appear instinctively to classify themselves apart, as they wait for the troughs to be filled.

In many of the wadys or gorges in the wilderness of Judæa, the sheep and goats are folded every night by their owners in the caves of the mountain sides, to protect them from the attacks of jackals, wolves, and other wild beasts.

It was a pleasant sight to watch the shepherd, as he carefully picked his steps on the side of some precipitous ridge, towards the well-known cavern, followed by his flocks and herds, whom he encouraged by many a cheering call on their way. "The sheep hear his voice, and he calleth his own sheep by name, and leadeth them out." The sun was setting, and the sheep might be seen quietly following the shepherd along the beaten and more easy paths, while the goats, in looser order, gambolled and skipped from rock to rock a little higher up on the mountain-side, still keeping in line with the sheep, but delighting to exhibit their prowess, and then, when the cave was reached, scrambling down by the most impossible routes, and often leaping in over the backs of their more sedate companions. How well this illustrates our Lord's awful comparison of the final separation of the righteous and the wicked in the day of final retribution: "He shall separate them one from another, as a shepherd divideth his sheep from the goats. And he shall set the sheep on his right hand, but the goats on the left" (Matt. xxv. 32, 33).

A kid of the goats has always been the ordinary dish at any feast or entertainment. The lambs are more generally kept till they reach maturity, for the sake of their wool, and a calf was too large and too valuable to be slain except on some very special occasions. Thus the elder brother of the prodigal complains: "Thou never gavest me a *kid*, that I might make merry with my friends; but as soon as this thy son was come . . . thou hast killed for him the fatted *calf*" (Luke xv. 29, 30). Thus Rebekah directs her son Jacob: "Go now to the flock, and fetch me from thence two good kids of the

goats; and I will make them savoury meat for thy father, such as he loveth" (Gen. xxvii. 9). When the angel visited him: "Gideon went in, and made ready a kid" (Judg. vi. 19). "And Manoah said unto the angel of the Lord, I pray thee, let us detain thee, until we shall have made ready a kid for thee" (xiii. 15).

Whenever, in the wilder parts of Palestine, the traveller halts at an Arab camp, or pays his visit to a village sheikh, he is pressed to stay until the kid can be killed and made ready, and he has an opportunity of seeing in front of the tent the kid caught and prepared for the cooking, which is carried on by the women out of sight in the inner compartment. Unless he is pressed by a necessity which the host cannot refuse to accept as a reasonable excuse, he must wait, if he regards his reputation for good manners, until the feast is prepared. The freshly-killed kid is extremely tender and good, as is all meat if cooked as soon as slaughtered, and the most fastidious palate cannot detect the difference between kid and lamb. The older goats do not furnish as good meat, though eaten for mutton in most parts of Palestine.

In all the districts where goats are kept, their milk is an important item of food, and is used both fresh and curdled, or manufactured into butter and cheese: "Thou shalt have goats' milk enough for thy food, for the food of thy household, and for the maintenance of thy maidens" (Prov. xxvii. 27). In the mountainous regions no other milk is used, and the goats are the sole wealth of many villages. Here they are profitable enough to maintain the farmer's family: "The goats are the price of the field" (Prov. xxvii. 26).

At Rasheiya, under Mount Hermon, we saw hundreds of goats gathered for the night in the wide open market-place beneath the castle. It was no easy matter to thread our way among them, as they had no idea of moving for such belated intruders on their rest. All the she-goats of the neighbouring hills are driven in every evening and remain for their morning's milking, after which they set forth on their day's excursion. Each house possesses several, and all know their owners The evening milking is a picturesque scene. Every street and open space is filled with the goats; and women, boys, and girls are everywhere milking with

their small pewter pots; while the goats are anxiously waiting their turn; or lying down to chew the cud as soon as it is over. As no kids or he-goats are admitted, the scene is very orderly, and there is none of the deafening bleating which usually characterizes large flocks.

These mountain goats are a solemn set, and, by the gravity of their demeanour, excite a suspicion that they have had no youth, and never were kids. They need no herdsman to bring them home in the evening, for, fully sensible of the danger of remaining unprotected, they hurry homewards of their own accord as soon as the sun begins to decline.

The use of the goat does not end with its life and its flesh, for its skin supplies the bottles that are universally in use in the East for the conveyance of water, wine, milk, and oil. The skin bottles are repeatedly alluded to in Scripture, and are indeed the only means used for the *transport* of liquids, stone jars being only employed for storing wine in the cellar or for keeping a supply of water within the houses.

The manufacture of these bottles is very simple. The animal is skinned from the neck, by simply cutting off the head and legs, and then drawing the skin back, without making any slit in the belly. The apertures for the legs and tail are at once sewn and tied very tightly up; and the skin, in this state, with the hair on, is steeped in tannin and filled with a decoction of bark for a few weeks. There are large tanneries in different towns, where the process is carried on on an extensive scale; especially at Hebron, where bottle-making, both of glass and leather, is the staple of the place. The skins are there partially tanned, then sewn up at the neck, and filled with water, the sutures being carefully pitched. They are then exposed to the sun on the ground for several days, covered with a strong decoction of tannin, and water pumped into them from time to time to keep them on the stretch till sufficiently saturated.

The hair on the bottles preserves them from much injury by friction in travelling, and it is very easy to recognize an old bottle by its bald appearance, as its coat wears off. Besides this wear, if a goatskin is allowed to get dry, the leather soon becomes brittle

and cracks, and this is especially the case with those that are kept hung up in the tents to hold the supply of water for cooking: "I am become like a bottle in the smoke" (Ps. cxix. 83). "No man putteth new wine into old bottles, else the new wine doth burst the bottles, and the wine is spilled, and the bottles will be marred; but new wine must be put into new bottles" (Mark ii. 22). Old bottles are frequently patched and mended with skin and pitch. "Wine bottles, old and rent, and bound up" (Josh. ix. 4).

There are several breeds of goats (*Capra hircus*) in Palestine. It might be expected that, as the country adjoins Persia and Armenia, the native region of the *Capra ægagrus*, the supposed original of the tame goat, it would have borne a strong resemblance to its wild ancestors. This, however, is not the case. The Syrian goats exhibit, for the most part, a wider divergence than any other breeds from the pristine type. There are two very marked races, one with shorter ears, sometimes erect, as in the wild goats, very like the Welsh breed of goat, and commonly of a whole-black colour. This breed I only saw in the north.

The common Syrian goat, distinguished as *Capra mambrica*, may be at once recognized by its enormous pendent ears a foot long, often reaching lower than its nose, and its stout recurved horns. It is larger than our goat, and is almost always black, with long hair. These long ears are alluded to by Amos: "As the shepherd taketh out of the mouth of the lion two legs or a piece of an ear" (iii. 12). In the neighbourhood of Hermon there is an intermediate breed, with ears not so long, and that do not curl up, and with larger horns, which often diverge horizontally instead of lying back over the ears. The hair is longer and more silky, and the build of the animal more compact. Black is as predominant a colour as white is in the English sheep. In a very few places the mohair goat may be seen, but only in the north of Palestine. It has been specifically distinguished as *Capra angorensis*, though only a carefully selected variety of the common goat. It is bred for the sake of its long silky hair, but is quite unsuited to the rough bushy districts, where its coat would be lost among the thorns.

The black colour of the goat is referred to in Cant

iv. 1 and vi. 5: "Thy hair is as a flock of goats that appear from Gilead." It was of old as now woven into cloth for many purposes: "Michal . . . . put a pillow of goats' hair for his bolster" (1 Sam. xix. 13). It was also the material of the covering of the tabernacle: "Thou shalt make curtains of goats' hair to be a covering upon the tabernacle" (Exod. xxvi. 7; xxxvi. 14).

SYRIAN GOAT.

"All the women whose heart stirred them up in wisdom spun goats' hair" (xxxv. 26).

Several typical and metaphorical uses of the 'goat' and 'he-goat' have been already mentioned. It appears to have been generally employed in contrast to the sheep, from its comparative lawlessness, independence, disposition to wander, and wantonness, to set forth the wicked as contrasted with the good. The goat is by no means so docile as the sheep, and when it has strayed

can much more easily provide for itself. Perhaps, too, the contrast of the colour added force to the comparison.

Goat, Wild. Heb. *ya'ĕl*, *i.e.*, 'the climber.'—The wild goat, or ibex, was well known to the Jews both in the wilderness and in the Land of Promise itself. Though familiar with the animal, they knew but little of its habits owing to its extreme wariness and wildness. "Knowest thou the time when the wild goats of the rock bring forth?" (Job xxxix. 1). The word also occurs in Prov. v. 19, where it is translated 'roe,' and

IBEX.

used like 'gazelle,' as a term of endearment: "Let her be as the loving hind and pleasant roe."

The wild goat of Arabia and Palestine is a species of ibex very similar to those of the Alps and Pyrenees (*Capra beden* or *sinaitica*), called *Beden* by the Arabs, and only differing from the European ibex in the shape and marking of the horns, and in its lighter colour. It inhabits exclusively the more desolate and rocky parts of the country: "The high hills are a refuge for the wild goats" (Ps. civ. 18).

In Arabia Petræa the ibex is very common, generally in small herds of eight or ten individuals. The Rev. F. W. Holland, who has often observed them there, writes:

"They are frequently shot by the Bedouins, who charge about 6*s.* for a full-grown one, and from 1*s.* 6*d.* to 2*s.* for a live young one; but they are very difficult to rear. I had three, but they all died, and one of the monks told me that the year before he had twenty, but had lost them all. The *Beden*, being very shy and wary, keeping to the mountains, and also, from their colour, very difficult to be seen, are not often detected by travellers, and have therefore been supposed to be much more scarce than they really are. The kids, before they are able to accompany the old ones, are concealed by the mother under some rock, and apparently are only visited at night. I once caught a little one which ran out from under a rock as I was climbing a mountain. The poor little creature had evidently heard me coming, and ran out thinking I was its mother. The Arab who was with me was very anxious to wait near it till evening to shoot the old one, and he said there must be another kid close by, as two were always dropped at a birth, but we failed to find a second. Their warning cry is a shrill kind of whistle."

The wild goat is even now not so rare in Palestine Proper as has been supposed. In the neighbourhood of Engedi, while encamped by the Dead Sea shore, we obtained several fine specimens, and very interesting it was to find this graceful creature by the very fountain to which it gave name (*En-gedi*, *i.e.*, 'Fountain of the kid'), and in the spot where it roamed of old, while David wandered to escape the persecutions of Saul: "Saul took 3000 chosen men out of all Israel, and went to seek David and his men upon the rocks of the wild goats" (1 Sam. xxiv. 2). When clambering on the heights above Engedi, I often, by the help of my glass, saw the ibex at a distance, and once, when near Marsaba, only a few miles from Jerusalem, started one at a distance of 400 yards. At the south end of the Dead Sea they were common, and I have picked up a horn both near Jericho on the hills, and also on the hills of Moab on the eastern side. At Jericho, too, I obtained a young one which I hoped to rear, but which died after I had had it for ten days, owing, I believe, to the milk with which it was fed being sour. Further north and west we did not find it, though I have reason to believe that a few linger on the mountains between Samaria and the Jordan, and

perhaps also on some of the spurs of Lebanon. We found its teeth in the breccia of bone caverns in the Lebanon, proving its former abundance there.

The wild goat has one, or more generally two, young at a birth, and the horns of the female are much smaller than those of the male, which in fine specimens are three feet long, with large rough rings or ridges on the front face. The flesh of the *Beden* is excellent venison, far superior to the dry meat of the gazelle, and is probably the venison which Esau went to hunt for his father in the Wilderness of Judæa. The horns of the ibex are in much request at Jerusalem for knife-handles and other manufactures.

There is another Hebrew word, *Ako*, which is translated 'wild goat' in the list of animals permitted for food in Deut. xiv. 5, and which occurs nowhere else. As the *ya'el* is not there mentioned, and was very common in Sinai, *ako* may be merely a synonym signifying the 'ibex' or 'wild goat.' Some authors suppose it to be the roebuck (*Capreolus pygargus*) of North Asia, or *Gazella subgutturosa*, called '*ahu*' by the Persians. It is doubtful if this animal was known to the Hebrews. Others have suggested that it is the Paseng (*Capra ægagrus*), the supposed parent stock of the common goat, and which probably did extend into Palestine; but nothing can be stated definitely on the subject. The wariness of every kind of ibex is well known, as also its keen scent, by which it can detect the hunter long before it sees him. We had about twenty Arabs employed in hunting *beden*, and they were often for a day or two consecutively without success, though they saw many. Its capture requires the climbing, patience, and energy of the chamois hunter. The herds generally have one or two sentries, and can only be approached by keeping to leeward in the early morning when they feed.

Greyhound.—The translation in our version of the Hebrew *Zarzîr mathnayim*, *i.e.*, 'girt in the loins,' which is named in Prov. xxx. 31, along with the lion, the he goat, and a king, as one of the "four things which are comely in going." The marginal reading is 'horse,' showing that our translators felt uncertain about the rendering. As stateliness and majesty of gait, rather than speed, is intended to be illustrated by the writer, the horse is more suitable than the greyhound, though

the large Persian greyhound is known in Palestine. [See Dog.] The Septuagint gives 'the strut of a cock:' and some commentators suggest 'a wrestler,' as being graceful and agile in his movements, *i.e.*, 'girt about the loins.'

Hare. Heb. '*arnebeth*,' Arab. '*arneb*,' is only mentioned in Holy Scripture in the list of animals forbidden as food to the Israelites: "The hare, because he cheweth the cud, but divideth not the hoof, he is unclean unto you" (Lev. xi. 6; Deut. xiv. 7).

The hare, however, is like the cony, not a ruminant animal, with four stomachs. It is a rodent, of the same

HARE.

class to which belong the squirrel, rat, porcupine, and a great number of the smaller quadrupeds. But the belief that it chewed the cud arose from its habit of constantly grinding its teeth and moving its jaw, as those animals do which ruminate or chew the cud. This habit keeps down to the requisite size the incisor teeth, which continue to grow during the animal's life. Thus, if one tooth be accidentally broken off, the one that meets it grows down, and often, by its length, prevents the animal from feeding. But as has been observed (under Cony), Moses speaks of animals ac-

cording to appearances, and not with the precision of a comparative anatomist, and his object was to show why the hare should be interdicted, though to all appearance it chewed the cud, viz., because it did not divide the hoof. To have spoken otherwise would have been as unreasonable as to have spoken of the earth's motion, instead of sunset and sunrise.

The flesh of the hare is highly esteemed by the Arabs, who assert that it is clean because it chews the cud, their limitation not extending to the other requisite of dividing the hoof. The Turks, like the Jews, consider it unclean.

There are two species of hare common in the Holy Land, and two others, perhaps only varieties or races of one of the others, occasionally met with. In the northern regions, and all the wooded and cultivated portions of the country, the only hare is the *Lepus syriacus*, which is there very common. It is of the same size and colour as the English hare, and extremely like it, but is rather shorter in the ear and broader in the head. It has four young at a birth. The common hare of the southern region of Judæa and of the Jordan valley is *Lepus judeæ*, Gray, a new species, and a much smaller animal, scarcely larger than a full-grown rabbit, with very long ears and a light tawny fur. It is very abundant in the most desolate regions, and, like the last species, has four young at a birth. We found the leverets at various times of the year. There are three other species only occasionally to be met with on the south-eastern frontier, *Lepus sinaiticus*, *L. ægyptiacus*, and *L. isabellinus*, one the characteristic hare of Arabia, the other of the Egyptian desert, distinguished from the last-named species by their smaller size, and the latter also by its pale buff colour, but in other respects similar, excepting in very minute particulars. No rabbit is found in Syria or in any of the adjoining countries.

Hart and Hind. Heb. *ayyal*, *ayyalah*.—The name applies either to deer in general or to some particular species. Deer must have been common in Palestine from the frequent references made to this *ayyal*, and from the places to which this animal gave name. Ajalon, or 'deer pasture,' occurs as the name of a Levitical city in the tribe of Dan (Josh. xxi. 24), and of another in Zebulon (Judg. xii. 12). Mount Ajlun in Gilead is also well known. The hart and hind, the

names given to the male and female deer, were among the clean animals given as food (Deut. xii. 15, &c.), and being then, as now, esteemed a delicacy, were among the provisions provided for Solomon's royal table (1 Kings iv. 23). They are frequently alluded to in the poetical and prophetical books.

The gentle and affectionate disposition of the deer is familiar to all, and is seized upon by the wise man as an image of a tender and loving wife: "Let her be as the loving hind and pleasant roe" (Prov. v. 19). Its habit of dropping and hiding its young in safety is adduced in Job xxxix. 1: "Canst thou mark when the hinds do calve?" So its timidity, which causes it to cast its fawns in alarm at the thunder: "The voice of the Lord maketh the hinds to calve" (Ps. xxix. 9). The expression in the prophecy of Jacob, "Naphtali is a hind let loose," or 'a graceful hind,' makes it emblematic of activity and elegance of motion. So also, "He maketh my feet like hinds' feet, and setteth me upon my high places" (2 Sam. xxii. 34; Ps. xviii. 33), where the surefootedness of the deer is alluded to, as also in Hab. iii. 19: "The Lord God is my strength, and he will make my feet like hinds' feet, and he will make me to walk upon mine high places." Naphtali proved herself a 'hind let loose,' when Barak delivered Israel from the iron yoke of Jabin, and Zebulun and Naphtali "jeoparded their lives unto the death in the high places of the field" (Judg. iv. and v. 18).

The swiftness of the deer is noticed: "Then shall the lame man leap as an hart" (Isa. xxxv. 6). "The voice of my beloved! Behold he cometh leaping upon the mountains, skipping upon the hills. My beloved is like a roe or a young hart" (Cant. ii. 8, 9). Its maternal affection is used by Jeremiah to illustrate the dire pressure of famine upon Jerusalem, under the misery of which "the hind also calved in the field, and forsook it, because there was no grass" (xiv. 5). So Lam. i. 6: "From the daughter of Zion all her beauty is departed: her princes are become like harts that find no pasture, and they are gone without strength before the pursuer." David compares his longing for the ordinances of the sanctuary when exiled in the wilderness to the eagerness of the deer for water in a season of drought: "As the hart panteth after the water brooks, so panteth my

soul after thee, O God" (Ps. xlii. 1). As the deer could only obtain water at certain places in the wilderness, and those far off, so the Psalmist could only join in the ordinances of God at the tabernacle, from which he was far distant.

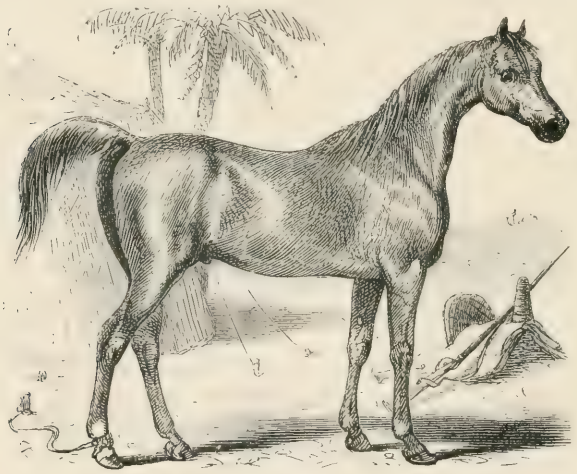
What species of deer is intended by *ayyal* is not clear. Unless the term be general it must have been either the fallow deer (*Dama vulgaris*), or the red deer (*Cervus elaphus*). The former is a native of Persia, and was probably common in the more wooded and fertile parts of the country. But it is now all but extinct in Palestine. Hasselquist met with it on Mount Tabor, where we were told it is still to be found, as well as in the woods between that mountain and the gorge of the Litany River. We ourselves only met with a single animal in an open glade about ten miles west of the Sea of Galilee. Its teeth have been found in bone breccia in the Lebanon, where it certainly does not now exist. But it would be much more easily extirpated than the antelopes of the desert, or the wild goats of the mountain, from its partiality for those districts which man has always continued to inhabit.

The only other deer of the existence of which in Palestine we have any evidence is the red deer, teeth of which—or of a closely-allied species—I collected in the bone breccia of caverns in the Lebanon. As, however, they were mingled with others, apparently of the reindeer, they may belong to a period anterior to the advent of man into the country. But though no red deer is now found in Egypt, yet we find it depicted in the temples, and a race of red deer (*Cervus barbarus*), very slightly differing from our own, still lives in Morocco, Algeria, and Tunis, where I have obtained it, and it probably, in ancient times, extended right across North Africa. The Syrian deer may very possibly have been the same in the south, while the European red deer may have extended from the Caucasus through Taurus into the Lebanon.

Hedgehog.—The Hebrew word *kippod*, which occurs several times in the prophets, and is translated 'bittern,' is supposed by some to denote the hedgehog, or the hedgehog and porcupine, which are often classed together by the Arabs. The hedgehog is very common in all parts of Palestine. That in the north is identical

with our own (*Erinaceus europæus*). The hedgehogs of the south of Judæa are smaller, and rather lighter in colour.

Horse, Heb. *soos*, generally applied to a chariot horse. *Recesh*, translated in our version 'dromedary,' occurs in 1 Kings iv. 28; Esth. viii. 10, 14; and Mic. i. 13, and really means a swift or high-bred horse. [See Dromedary.] *Rammac* (Esth. viii. 10) means 'a mare;' and *Parash*, always given in our version 'horseman,' certainly denotes a cavalry or riding-horse, in contrast to a chariot horse. Thus Solomon had 1200



HORSE.

parash, 'cavalry horses' (1 Kings iv. 26). "He saw a chariot with a couple of *parash*, 'horses'" (Isa. xxi. 7). "They of the house of Togarmah traded in thy fairs with horses and horsemen [Heb. chariot horses and riding horses] and mules" (Ez. xxvii. 14). "The appearance of them is as the appearance of horses [Heb. chariot horses]; and as horsemen [Heb. cavalry horses] so shall they run" (Joel ii. 4). So also Gen. l. 9; Ex. xiv. 9, 17; Hab. i. 8; Es. xxvi. 10; and other places, in all of which our translators have 'horsemen.'

It is remarkable that the horse is scarcely ever spoken of in Holy Writ, except in connection with war and

armies. The one exception is Isa. xxviii. 28: when speaking of threshing, the prophet says of bread-corn, "He will not bruise it with his horsemen" [Heb. horses]. But in this case the horses were not employed yoked to any implement, but simply driven wildly over the sheaves strewn upon the threshing floor.

The Jews were early acquainted with the horse, for Egypt was from the earliest ages famed for its horses, and the first mention of the horse in Scripture is when Joseph sold out the corn from the storehouses, in the first year of famine, in exchange for horses and other cattle (Gen. xlvii. 17). But the pastoral patriarchs, never engaging in war, had no occasion for the services of the horse, which, excepting for aggression or military purposes, was quite useless to a nomad race of herdsmen. Nor when they entered upon the possession of the Land of Promise did they require the peaceful services of the horse. Southern Judah and the wide eastern domains of Reuben, Gad, and Manasseh, were not devoted to tillage, and the central regions of Western Palestine are too hilly and rocky to be adapted for the agricultural employment of the horses even now, when its capabilities in this respect are so well known.

Nor did the character of the greater part of the country admit of chariots bearing an important part in warfare. It was only on the maritime plains, in the Plain of Esdraelon, and on the north-eastern frontier, that chariots could be brought into battle in any large force. In these districts the Canaanites possessed many chariots and horses, while Israel had none. The consequence was that the usual order of successful invasions was reversed: the aboriginal Canaanites were driven out of the hills, but remained in the plains; the mountains were the secure and peaceful, the level and plain districts the insecure, parts of the country.

During Joshua's conquest of the hill country, when he won for Judah and Benjamin, for Ephraim and Manasseh, their destined heritage, we find no mention of chariots in the rugged central region; but when Jabin, king of Hazor, in the far north rallied the whole native force in one grand confederacy, and they met the conquering hosts of Israel by the Waters of Merom, it was "with horses and chariots very many" (Josh. xi. 4) which could be used on those long level plains of the

Upper Jordan with terrible effect. This was a new feature in the war, and Joshua received the command to "hough their horses, and burn their chariots with fire" (ver. 6). He gained an overwhelming victory, and chased them across the country towards Zidon. In the hills of Naphtali their speed availed them nothing; the whole were captured, and the command obeyed to "hough the horses and burn the chariots."

Again, after a lapse of 150 years, the horses of another Jabin, king of Canaan, were a terror to Israel, "for he had 900 chariots of iron, and twenty years he mightily oppressed the children of Israel" (Judg. iv. 3). Then again the battle was in the plain, that same plain over which, in after times, Ahab and Jehu drove their chariots, and the defeat was complete when the swamps and mud of the swollen Kishon engulfed the wheels, and "the horsehoofs were broken by the means of the pransings [plunging or trampling], the pransings of their mighty ones" (Judg. v. 22).

Again we find chariots used in the plains of Philistia and Sharon in the south, for Judah "drave out the inhabitants of the mountain; but could not drive out the inhabitants of the valley, because they had chariots of iron" (Judg. i. 19).

The Israelites were from the first a nation of infantry, and so continued even under the monarchy, so that the Syrians from Damascus said: "Their gods are gods of the hills; therefore they were stronger than we; but let us fight against them in the plain, and surely we shall be stronger than they" (1 Kings xx. 23).

Horses and chariots were the most formidable branch of the Egyptian armies. It was upon the chariots and the horses of Pharaoh that the Lord would get Him honour; and the song of victory was: "Sing ye to the Lord, for he hath triumphed gloriously; the horse and his rider hath he thrown into the sea" (Ex. xv. 21). The horse was thenceforth intimately associated in the minds of the people with the oppression of Egypt, and the divine lawgiver expressly cautioned the king, whom in after ages they might set over them: "He shall not multiply horses to himself" (Deut. xvii. 16), lest their possession should tempt him to wars of aggression.

The first instance on record of a king of Israel establishing a force of chariots or cavalry is when David,

after his defeat of Hadadezer, king of Zobah, or North-eastern Syria, "houghed all the chariot horses, but reserved of them for an hundred chariots" (2 Sam. viii. 4). These were doubtless reserved for the purpose of keeping in subjection that wide champaign country. Solomon largely increased this force, importing horses and chariots out of Egypt at a fixed tariff of 600 shekels for a chariot and its horses and 150 shekels for each cavalry horse (1 Kings x. 28, 29), besides the horses which he received in tribute, until he had 40,000 (or as some have with reason interpreted the text, 4000) stalls of horses for his chariots, and 12,000 cavalry horses (1 Kings iv 26). He probably created the main chariot roads between Jerusalem and the north, and across Esdraelon to Gilead; for his successors all used chariots and horses; as we read of Jehoshaphat going in his chariot with Ahab, from Jezreel to Ramoth-Gilead; of Rehoboam, Ahaziah, Joash, and of Josiah riding in chariots.

The kings of the northern kingdom possessed a country more adapted for their use, and the chariots of Ahab, Jehoram, and Jehu, are repeatedly mentioned as being their ordinary mode of travelling. With the destruction of the chariots and cavalry of Jehoahaz, son of Jehu, by Syria, when but fifty horses and ten chariots were left him (2 Kings xiii. 7), the power of the Israelitish kingdom fell; and from the sneers of Rab-shakeh it would seem that in the time of Hezekiah this force had become insignificant in the kingdom of Judah also. Hence partly the frequent policy of the later kings to rely on Egypt for chariots and for horses, denounced by the prophets: "Woe to them that go down to Egypt for help; and stay on horses, and trust in chariots, because they are many; and in horsemen, because they are very strong" (Isa. xxxi. 1). [See also Ez. xvii. 15.]

This help of Egypt was sought not only against Syria, which possessed a formidable force of chariots and cavalry, but especially against Assyria, the chariots and cavalry of which were looked upon as the most powerful in the world. Their breed of horses was very fine, as may be seen from the sculptured figures of Nineveh. "No one can look at the horses of the early Assyrian sculptures without being convinced that they were drawn from the finest models. The head is small and well-shaped, the nostrils large and high, the neck arched, the body long,

and the legs slender and sinewy." (*Layard's Nineveh*, vol. ii. p. 360.) "Their horses also are swifter than the leopards, and are more fierce than the evening wolves," exclaims the prophet, of the horses of the Chaldeans (Hab. i. 8). "The pransing horses and the jumping chariots" are especially mentioned by Nahum (iii. 2) as features of Nineveh; and the Mesopotamian plains supplied Egypt for many ages with its finest horses, at a period when there is no trace of the horse having been used in Arabia, for it was the camels, not the horses, of the Midianites that were without number; and it is "the *dromedaries* of Midian and Ephah" that are pictured as covering the church in the latter days, and bringing gold and incense to shew forth the praises of the Lord (Isa. lx. 6).

After the return from Babylon horses were always kept by the Jews, and the number they brought back with them was 736 (Neh. vii. 68). They were constantly employed by the Greek kings of Syria in the wars of the Maccabees; and under the Romans, that national genius for road-making which has left its traces in the remotest parts of Europe, greatly increased the facilities for communication among the most rugged hills of Palestine. There was a chariot-road to Egypt (Acts viii. 28), originally constructed, as is probable, by Solomon, and paved by the Romans; of which traces remain. In the wilds of Gilead and Bashan the chariot-roads can easily be traced, and the ruts worn by Roman carriages are still deep in the pavement from the ruins of Gadara to the bridge of the Jordan; and far east, among the lonely temples and theatres of Jerash and Rabbah, where wheels have never penetrated for more than 1000 years. Now there is not a carriage, nor a carriage-road in the whole of Palestine, though horses are used, not only by the Bedouin, but in all the towns and villages, for riding and bearing burdens, not for agricultural operations.

The magnificent description of the horse in the Book of Job, no less than the various references to it in the historical books, shows how it was regarded exclusively as the animal of war, and as prefiguring strength rather than speed or utility: "Hast thou given the horse strength? hast thou clothed his neck with thunder? Canst thou make him afraid as a grasshopper? the glory

of his nostrils is terrible. He paweth in the valley, and rejoiceth in his strength: he goeth on to meet the armed men. He mocketh at fear, and is not affrighted; neither turneth he back from the sword. . . . He swalloweth the ground with fierceness and rage: neither believeth he that it is the sound of the trumpet. He saith among the trumpets, Ha, ha; and he smelleth the battle afar off, the thunder of the captains, and the shouting" (Job xxxix. 19–25).

We may imagine a foreshadowing of the future peaceful employment of the horse in the prophecy of Zechariah that "there shall be upon the bells of the horses, Holiness unto the Lord" (xiv. 20).

The Assyrian sculptures exhibit riding-horses with bells round their necks, and the bridles were profusely adorned with tassels, as they are still by the Arabs. The bit and bridle were of the same form as those in use to this day, and are frequently mentioned, "whose mouth must be held in with bit and bridle" (Ps. xxxii. 9). "I will put my bridle in thy lips" (2 Kings xix. 28), &c. But the hoofs were left unshod, as with many of the Bedouin horses now, an omission which, where the ground is not very rocky, hardens the hoof, and prevents many ailments to which shod horses are liable: "Their horses' hoofs shall be counted like flint" (Isa. v. 28). The chariots, as well as the horses, had rich trappings, though saddles were unknown: "Dedan was thy merchant in precious clothes for chariots" (Ez. xxvii. 20). Horses and chariots were used in idolatrous processions, and were dedicated to the worship of the sun (2 Kings xxiii. 11).

The breed of horses in Arabia, which supplies all the best horses in Palestine and Egypt, is probably derived from the ancient Chaldæan stock, and the horse has taken the place of the dromedary in Arab warfare. Almost every man in the tribes east of Gilead is mounted; but west of Jordan fine horses are rare, and the ordinary baggage horse is a small animal of fifteen hands high, without great speed, but with wonderful powers of endurance.

Hyæna.—The name of the hyæna does not occur in our version, but there can be little doubt that it is intended by Jeremiah when he writes: "Mine heritage is unto me as a speckled bird (Heb. *tzebúa'*), the birds

round about are against her" (xii. 9). The Arabic name of the hyæna (*ddubba'*) is akin to it, and it signifies 'spotted' or 'streaked.' Another allusion to this animal is the 'Valley of Zeboim,' mentioned in 1 Sam. xiii. 18, and signifying 'the valley of hyænas.'

The hyæna (*Hyæna striata*) is very common in all parts of Palestine. It is quite indifferent to the character of the country, and makes a home alike in the deserts, in the woods, or in the tombs; but its favourite haunts are the old rock-hewn tombs with which the Holy Land everywhere abounds. To these caves it brings the bones it

HYÆNA.

collects, and I have found in an old quarry tenanted by these beasts, heaps of bones of camels, oxen, and sheep, and no less than seven camels' skulls together, which had baffled the gnawing powers even of an hyæna. We met with hyænas in the Jordan valley, near Beersheba, at Jerusalem, Nazareth, Mount Carmel, and Tabor.

Next to the jackal, they are the most numerous beasts of prey, but are not dreaded by the people, being cowardly creatures; yet they are abominated as the most unclean of all animals. For this there is good reason, as they prowl about the graveyards to attack the buried

corpses, on which they feast, and unless the grave be well protected by a covering of heavy stones, they will rapidly exhume the body. Indeed, after these precautions, they are often known to burrow alongside, and so to reach the body.

The old hyæna attains a considerable size, and the fur is less distinctly marked than in specimens three or four years old, when it is finely striped with black and tawny. Its food is carrion, but especially bones, and, when pressed by hunger, it will attack large animals. The ass of one of my servants was once devoured by the hyænas in the night, while he was sleeping close to it. They left nothing of it but the skull. The hyæna has a stiff ridge or mane of long hair erect from its neck, and, extending along the back, which gives it a ferocious appearance. In Syria I have not observed them hunt in packs, but generally two together.

JACKAL.

JACKAL.—Though the jackal does not occur by name in our version, yet it is frequently referred to, and under more than one name. (1.) *Íyím*, *i.e.*, 'howlers,' rendered in our bibles 'wild beasts' of the islands, found in Isa. xiii. 22; xxxiv. 14; Jer. l. 39. So, in Arabic, one of

the names of the jackal is 'sons of howling.' [See BEAST, WILD.] (2.) *Tan*, translated 'dragon,' which occurs in many passages, and almost always in connection with the desert, with ostriches, or wild beasts, is believed by the best critics to point to the jackal. In fact, this is the only interpretation which will harmonize all the passages. It occurs in the following passages:—"I am a brother to dragons (*tannim*), and a companion to ostriches" (Job xxx. 29). "An habitation of dragons, and a court for ostriches" (Isa. xxxiv. 13). "The wild beasts of the island shall cry in their desolate houses, and dragons in their pleasant palaces" (xiii. 22). "Desolate, and a den of dragons" (Jer. x. 22). "I will make a wailing like the dragons" (Mic. i. 3). "Dragons of the wilderness" (Mal. i. 8). The other passages where it is found are Ps. xliv. 19; Isa. xliii. 20; Jer. ix. 11; xiv. 6; xlix. 33; li. 37. [See DRAGON.]

The 'wailing' spoken of in one passage, the snuffing up the wind in another, the association with ostriches, with deserts, and desolate places, all suit the jackal exactly, and certainly point to no serpent or monster.

(3.) *Shû'al*, always in our bible translated 'fox,' is undoubtedly a comprehensive term, from which our own word jackal is ultimately derived, and which comprehends the jackal as well as the fox. [See FOX.] In several instances, as in the expression, "They shall be a portion for foxes" (Heb. *shû'alim*, Ps. lxiii. 10), the jackal is indicated. It is the jackal rather than the fox which preys on dead bodies, and which assembles in troops on the battle-fields, to feast on the slain. Again, when we read (Judg. xv. 4, 5) that Samson caught 300 *shû'alim*, these must have been the gregarious jackal, not the solitary fox. The natives of the East discriminate very little between the two animals, or rather look on the fox as a small and inferior species of jackal. Indeed their appearance to a cursory observer is very similar, the jackal having its fur of paler colour, or yellowish rather than reddish in hue.

The jackal (*Canis aureus*), *i.e.*, the golden dog, from its yellow colour, is extremely common in the whole of Palestine, as it is in all the countries south and east of the Mediterranean to the far east of Asia. It inhabits the whole of Africa, and in Europe it is found in Southern Russia, Turkey, and Greece, up to the north-eastern

shores of the Adriatic. In Syria it secretes itself during the day in old quarries, caves, or ruins, but in the forests of North Africa it is content with the cover of the brushwood.

Wherever the traveller camps in the Holy Land, he will nightly hear the wailing cry of the packs of jackals as they quarter the country in search of food. They often visit the camp itself, and carry off any piece of meat that has been left unsecured. About the ruins of Baalbek the packs of jackals secrete themselves by hundreds: there their sudden howl would break the dead stillness of the night, as we lay under those towering columns, and, caught up from pack to pack, was echoed back from the cavernous temples below, till the air seemed filled as if with the wailing of a thousand infants; and the words of the prophet were brought vividly home. "The jackals shall cry in their desolate houses, and dragons in their pleasant palaces" (Isa. xiii. 22). "The wild beasts of the desert, with the jackals shall dwell there, and the owls shall dwell therein" (Jer. l. 39).

Nor is it only in the seats of ancient splendour that the jackals howl; they sweep the desolate ravines of the Dead Sea, and secrete themselves in the hermits' caves by Jericho. They nightly visit the walls of Jerusalem, and provoke a defiant chorus from the swarming pariah dogs, as intolerant of them as the hound is of the fox. I have known them enter not only villages but walled towns. A pack one night entered the town of Caiffa, through a gap in the wall, and scoured the place unmolested. But they are most inoffensive to man; and cunning as a fox, they hush their wail when seeking to filch from the tent, and scamper off at the top of their speed when they find themselves observed. I once met a pack after midnight in a suburb of Algiers, who politely made way for me to pass, but instantly rushed in full pursuit after a belated dog.

Ehrenberg describes an animal which he calls *Canis syriacus*, but which is merely the jackal of the Lebanon, not really differing from that of other countries.

Leopard (*Felis leopardus*). Heb. *namer;* Arab. *nim'r;* Gr. *πάρδαλις*.—Is several times alluded to in Scripture, and its swiftness, cunning, perseverance, and strength are spoken of. It is taken as a type of fierceness, when

in the coming time of the reign of Christ "the leopard shall lie down with the kid" (Isa. xi. 6). Agile, swift, and rapid in its attack, it is, in the prophecy of Daniel, the apt type of the sudden sweep of the conquering Alexander of Macedon, the founder of the third great empire: "I beheld, and lo another, like a leopard, which had upon the back of it four wings of a fowl . . . and dominion was given to it" (Dan. vii. 6). Habakkuk compares the onslaught of the Chaldæan cavalry to the leopard, "Their horses also are swifter than the leopard" (i. 8).

The leopard, as is well known, will take up its station in concealment by a village or a watering-place, and

LEOPARD.

await for hours its opportunity of pouncing upon the cattle. This habit supplies the force of the comparison: "A leopard shall watch over their cities" (Jer. v. 6). "I will be unto them as a lion; as a leopard by the way will I observe them" (Hos. xiii. 7). The beautifully-spotted skin of the leopard is alluded to in the familiar text: "Can the Ethiopian change his skin, or the leopard his spots?" (Jer. xiii. 23). (See Appendix, Note B.)

We have incidental proof that the leopard was formerly common in the Holy Land in the names of places derived from it, as Beth-nimrah, or Nimrah, a fenced city allotted to Gad, near the Jordan eastwards (Numb. xxxii. 3, 36).

It is curious to trace the change of names in the history of this place—'The house of leopards' of old; as the country became more densely peopled, and the leopards disappeared, it had changed to the Beth-abara, or 'house of the ford' of the Septuagint and the New Testament, when John the Baptist baptized beyond Jordan. With the present desolation of the land the leopard has resumed its sway, and roams undisturbed; the ford has become disused and almost forgotten, and the Beth-abara of the Roman period has to-day regained its old appellation, and is the Nahr-Nimrim, *i.e.*, 'the stream of the leopards' of the modern Arabs. Deservedly is it so named, for in its thickets the leopards lurk; and though I did not see the animals themselves, their fresh footprints were clear and unmistakable on the moist ooze. It is the broad massive footmark of the leopard which Lynch, De Saulcy, and other travellers have mistaken for that of the lion, which is there quite extinct. There is another Nimrim, 'leopards,' in the land of Moab, mentioned by Isaiah and Jeremiah: "The waters of Nimrim shall be desolate" (Isa. xv. 6; Jer. xlviii. 34). This is a rich verdant spot at the south-east end of the Dead Sea, which still bears the Arabic name of Nimeirah, and where, too, we found traces enough of the leopard. 'The mountains of the leopard' are also spoken of by Solomon (Cant. iv. 8).

The leopard is by no means so rare in Palestine as has been supposed. In the forests of Gilead it is still so numerous as to be a pest to the herdsmen, who, with their inferior weapons, are somewhat loth to encounter it in the chase, for a wounded leopard is the most terrible and cruel of beasts. The sheikh of one village shewed me no less than four leopard skins recently killed. About the Dead Sea we frequently saw their traces. We also tracked them on Mount Tabor, but throughout Galilee they are rare. On Mount Carmel they are still found, and while we were there a magnificent pair were killed by some Arabs, who sold the skins for 20*l*. They were so large that it is not surprising that the spoor of such beasts should have been taken for tigers' or lions'. A leopard's skin is highly prized as a saddle-cloth by the Turkish officials, and also is frequently worn over the shoulders by a certain class of dervishes.

There is another animal of the leopard kind, the well-

known chetah, or hunting leopard of India (*Felis jubata*), which, though scarce, is found in different parts of the country. A few still haunt the neighbourhood of Tabor and the hills of Galilee. In Gilead it is more common, and a sheikh there presented me with three skins of chetah shot by his people. Though the chetah is much less formidable than the leopard, yet it does not appear to be discriminated by the Syrians, and is never by them domesticated or kept for hunting, as by the natives of

CHETAH.

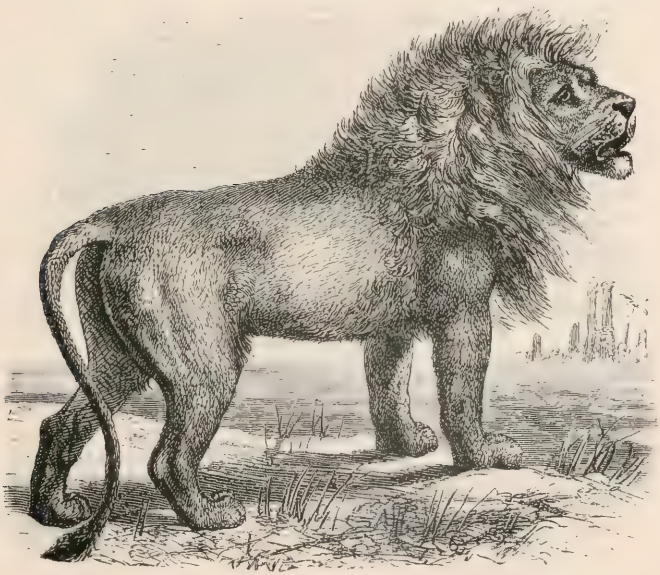
India; at least I could find no trace of such use of it, even among the sheikhs, who were learned in falconry. The chetah is doubtless comprehended under the Hebrew term '*namer*.' The panther is merely a synonym of the leopard. One or two other large species of the *Felidæ*, or Cat tribe, as the lynx, and perhaps the caracal, are found in Palestine, but rarely, and did not come under our personal observation.

Leviathan.—Though by some imagined to express the whale, yet is now admitted to mean the crocodile. [See Leviathan, Reptiles, Chap. IX.]

CHAPTER VI.

Mammals.—Part III.

Lion (*Felis leo*).—About 130 times is the king of beasts mentioned in Scripture. Several Hebrew words are used to express the lion. (1.) The common word is *aryeh*, denoting the animal in general, without regard to age or sex. (2.) *Cepheer*, 'a young lion,' not a mere cub, is always so rendered in our version, excepting in



LION.

two or three passages in Proverbs, where it is simply 'lion.' However, *cepheer* was not necessarily very different from *aryeh*, as both words are applied to the lion which Samson slew, and in the carcase of which the honey was found. (3.) *Labi*, *Labiyah*, 'an old lion,' 'lioness,' from a Coptic root. "Judah . . . couched as

a lion, and as an old lion" (Gen. xlix. 9). "The people shall rise up as a great lion" (Numb. xxiii. 24). "He couched; he lay down as a lion, and as a great lion" (xxiv 9). "What is thy mother? a lioness. She lay down among lions; she nourished her whelps among young lions" (Jer. xix. 2). So also Nahum ii. 11, and other passages, where the dignity or strength of the old lion is emphatically pointed to. (4). *Laish*, 'an old lion,' another poetical name, signifying an old lion in the vigour of his strength. "A lion (*laish*) which is strongest among beasts, and turneth not away for any" (Prov. xxx. 30), occurs only in few passages, but gave names to places, as Laish, the aboriginal name of the Northern Dan.

The range of the lion has become much circumscribed since the dawn of history. The mythology and the legends of ancient Greece speak of a time when the lion was familiar to their forefathers, whose hero-worship dignified the slayer of the Nemean lion. But within the historic period, long after the legends of Homer, we find the lion in Europe. Herodotus tells how the Thracian lions made an onslaught on the camels of the invading army of Xerxes. Xenophon speaks of it as inhabiting Macedonia in his time, and Aristotle twice mentions its existence in Macedonia. Thus the lion, whose roar may even now be heard in the Atlas, as far west as the Straits of Gibraltar, was, to a comparatively recent period, common in Syria, Asia Minor, and Greece.

In Palestine the lions had their lairs in the forests, which have perished with them, and in the cane brakes of the Jordan. Not only did they supply the imagery of Psalmists and Prophets, but they lingered there till the time of the Crusades, and are mentioned as living about Samaria by historians of the twelfth century. No fossil remains of the lion have yet been recognized; but, independently of the historical evidence, the late Dr. Roth found its bones in gravel of the Jordan, and the specimens are now, I believe, deposited in the Museum of Munich.

It was probably during the period of the Greek and Roman dominion that it became almost extirpated, and now the lion can scarcely be said to exist in Asia west of the Euphrates.

The Arabs say it is found in Arabia; but of this we

have at least no evidence. Occasionally it crosses the Euphrates, and a few years ago a lion's carcase was brought into Damascus. Between the Lower Tigris and Euphrates they still abound. Mr. Layard saw them frequently, and during his excavations at Niffer, below Babylon, found fresh traces of their footsteps almost daily among the ruins. It extends also far higher up, to the jungle of the Khabour, or Chebar, on the Upper Tigris, above Mosul and Nineveh (the ancient Chebar), where Layard mentions an Arab being attacked by one, and escaping with the loss of his mare. The same author observes, "That it was originally an inhabitant of the country there can be no doubt. From the earliest period it was considered the noblest of game, and was included among the wild beasts preserved in the paradises or parks attached to royal residences. On the monuments of Nineveh the triumphs of the king over this formidable animal are deemed no less worthy of record than his victories over his enemies. History and tradition too have celebrated the prowess of Ninus and Semiramis in their encounters with the lion: and paintings representing their feats adorned the palaces of Babylon. . . . The lion of the sculptures is furnished with a long and bushy mane. It has been doubted whether the animal which still inhabits the country has this noble appendage, but I have seen more than one on the banks of the Karoon provided with it. There is a peculiarity in the Asiatic lion which has not escaped the notice of the sculptor—the claw at the extremity of the tail. This claw was not unknown to ancient naturalists. . . . In modern times its existence was denied, and has only been established within a few years. It is still, I believe, considered to be a mere casual excrescence, and is not met with in all specimens of the animal."—*Layard's Nineveh*, vol. ii. pp. 427–429.

It is possible that both the long-maned and the short-maned, or Persian lions, inhabited Palestine, and that the names *Laish*, or *Labi*, or both of them, rendered 'old lion,' express the powerful maned lion. But most probably the common lion was the short-maned variety, which is less daring and formidable than the long-maned variety, and which the shepherds would sometimes venture to encounter single-handed: "As the shepherd taketh out of the mouth of the lion two legs, or a piece of an ear"

(Amos iii. 12). So David, when a youth, had slain both a lion and a bear, when they attacked his father's flocks (1 Sam. xvii. 36).

Various places in the Holy Land derived their name from the lion. Besides Laish, already mentioned, we find Lebaoth, or Beth-lebaoth, 'the house of lionesses' (Josh. xv. 32; xix. 6), and Arieh (2 Kings xv. 25). They are spoken of in Scripture as inhabiting various parts of the country, such as the tangled jungle by the banks of the Jordan: "He shall come up like a lion from the swelling of Jordan" (Jer. xlix. 19; and l. 44) *i.e.*, driven forth from his lair by the periodical overflow of the river. "A voice of the roaring of young lions; for the pride of Jordan is spoiled" (Zech. xi. 3). They also secreted themselves in the brushwood, as they do now in the Atlas: "The lion is come up from his thicket" (Jer. iv. 7). "He hath forsaken his covert, as the lion" (xxv. 38). [See Job xxxviii. 40.] In the forest: "A lion out of the forest shall slay them" (Jer. v. 6). "Mine heritage is unto me as a lion in the forest" (xii. 8), &c. And in caves: "The lion . . . filled his holes with prey, and his dens with ravin" (Nahum ii. 12). "Come with me . . . from the lions' dens" (Cant. iv. 8). "He lieth in wait secretly, as a lion in his den" (Ps. x. 9).

Not only did the lion sometimes venture to attack the flocks, in spite of the resistance of the assembled shepherds (Isa. xxxi. 4), but it preyed upon man himself. Thus the disobedient prophet who came out of Judah to Bethel was slain by a lion (1 Kings xiii. 24), as was the man who refused to obey one of the sons of the prophets in the time of Ahab (xx. 36); but after Israel had been desolated by the Assyrian kings, and was then repeopled by them, the lions had so multiplied that they laid waste the towns and villages of Samaria (2 Kings xvii. 25, 26).

The mode of capturing the lion was rude in the extreme, but the same as is still practised. A pitfall was made, with spikes driven into the bottom; this was carefully covered over, and then the assembled population by loud cries and noises startled the lion from his lair, and drove him towards the pit; when impaled, he was despatched by their spears. Sometimes he was driven into a sort of decoy of loose network, in which

he became entangled, and comparatively helpless. These modes of capture are alluded to by Ezekiel: "He was taken in their pit, and they brought him with chains unto the land of Egypt. . . . The nations set against him . . . and spread their net over him: he was taken in their pit" (xix. 4, 8). It was a feat of valour on the part of Benaiah, the son of Jehoiada, one of David's mighty men, that "he went down and slew a lion in the midst of a pit in time of snow" (2 Sam. xxiii. 20), this being a single-handed achievement.

The Eastern monarchs were accustomed to keep lions in confinement; not as the Egyptians did, tamed for the purpose of hunting, as is represented in their sculptures; or for the sake of the shows of the arena, and for public combats, as among the Romans; but for regal pomp and ostentation, though, as in the case of Daniel cast into the lions' den, they were also employed as instruments of despotic vengeance (Dan. vi.).

The lion's roar was a familiar sound among the hills and valleys of Israel, and is expressed by four different words:—(1.) The yell of the whelps: "They shall yell as lions' whelps" (Jer. li. 38). (2.) His roar when he roams abroad for prey: "The lion hath roared, who will not fear?" (Am. iii. 8). "The young lions roar after their prey, and seek their meat from God" (Ps. civ. 21). In Job the same word is also used to express the sound of thunder. (3.) The lion's yell when he lays hold of his prey: "They shall roar like young lions: yea, they shall roar, and lay hold of the prey, and carry it away safe" (Isa. v. 29). And (4.) Their savage growl when disturbed over their feast: "Like as the lion and the young lion roaring on his prey, when a multitude of shepherds is called forth against him" (xxxi. 4).

The lion was, among all the nations of antiquity, the symbol of royal power and strength. As such it is depicted among the sculptures of Nineveh, and was the proud escutcheon of the princely tribe of Judah: "Judah is a lion's whelp . . . he stooped down, he couched as a lion, and as an old lion; who shall rouse him up?" (Gen. xlix. 9). In the closing book of the Revelations it received a deeper significance as the emblem of the Divine Son, the conqueror of Death, "the Lion of the tribe of Judah, the Root of David," who "prevailed to open the book, and to loose the seven seals thereof" (Rev. v. 5).

From its associations with the tribe of Judah, perhaps, Solomon selected it as a royal device in the sculptures, both of the Temple and of the king's house. Lions, with oxen and cherubim, were graven to adorn the bases of the brazen sea. Two carved lions supported the ivory throne on either side, and twelve others guarded the six steps up to the throne, the work of the Tyrian artificers of Hiram.

The singular ruin in Gilead, Arak el Emir, the castle and stronghold of Hyrcanus, the elder Maccabean prince, has colossal lions carved on its face in deep relief, reminding us of the favourite comparison of the hero of the family to a "lion's whelp roaring for his prey" (1 Macc. iii. 4). While the strength of the lion was proverbial: "What is stronger than a lion?" (Judg. xiv. 18); "A lion which is strongest amongst beasts, and turneth not away for any" (Prov. xxx. 30; 2 Sam. i. 23, &c.)—his courage, "bold as a lion" (Prov. xxviii. 1), &c.—yet its fierceness and cruelty cause it often to be used in the Psalms as the figure of a malignant enemy; and the arch enemy of mankind is compared by St. Peter (1. v. 8) to "a roaring lion, walking about seeking whom he may devour." The many other passages in which the lion is set forth as the emblem of courage, power, strength, and ferocity are too numerous to be quoted at length.

MOLE.—Two words are thus rendered in our version. (1.) *Tinshemeth* (Lev. xi. 30); probably a lizard. [See CHAMELEON.] (2.) *Chephor-peroth:* "In that day a man shall cast his idols of silver and his idols of gold . . . to the moles and to the bats" (Isa. ii. 20). The Hebrew word points unmistakably to some burrowing animal; but as it does not elsewhere occur, not much light can be thrown on the passage.

There are many creatures of the rat and weasel tribe which burrow among old ruins, and it is not necessary to limit the name to one single species. It implies, in fact, 'the burrowers.' Our mole (*Talpa europæa*) does not exist in Palestine, nor has any other species of true mole been found there. But if it were so, the mole is not in the habit of burrowing about ruins, but in pastures and cultivated fields.

The so-called mole of Syria is a very curious and interesting animal It is the mole-rat (*Spalax typhlus*),

with much of the external appearance of our mole, but considerably larger, eight or nine inches long, of a silvery grey colour, without any external eyes or tail, but with a very large ear orifice, though not apparent through the fur. It is a rodent, with very powerful incisors, like the squirrel's, but much longer, and a broad, naked muzzle. It lives in underground communities, making large subterranean chambers for its young and for storehouses, with many runs connected with them, and decidedly partial to the loose *débris*

MOLE-RAT. (*Spalax typhlus.*)

about ruins and stoneheaps, where it can form its chambers with least trouble. In this respect it differs from the mole, and suits the Scriptural allusion. There are many of these animals about the walls of Jerusalem, where they burrow in the rubbish. Their food is entirely vegetable, and consists chiefly of bulbs, and in the gardens they commit some havoc among the carrots and onions. We caught many, and I kept them alive for some time in earthen jars (as they instantly gnaw through wood) and fed them on onions and soaked bread. They were quiet in the day-time, but incessantly restless at night. The mole-rat may well be the 'mole' of Isaiah.

Mouse, Heb. *'akhbar*, is mentioned in Lev. xi. 29 as one of the creeping things forbidden as food. In Isaiah, again, it is named as an unclean abomination: "They that sanctify themselves . . . eating swine's flesh, and the abomination, and the mouse, shall be consumed together" (lxvi. 17). In 1 Sam. ch. vi. we find that mice were sent as a visitation upon the Philistines, who retained the ark of the Lord, and that when the ark was consequently sent back, they sent with it five golden mice, images of the mice that marred their land (v. 5), as a trespass offering. In this passage, the mice that ravaged the fields of Philistia were probably field-mice of one or all the various species which are found in Palestine; and the Hebrew word exactly describes the mouse in its etymological signification, being the 'corn-eater.' But in the other passage the name is doubtless generic, including the very many small rodents of the rat, mouse, marmot, jerboa, dormouse, and hamster kinds which inhabit Syria.

In reference to the passage in Isaiah, we may note that many of the Arabs eat the jerboa, the larger species of dormouse, and especially the large sand-rat (*Psammomys obesus*). The Hebrew *'akhbar* may be taken as the equivalent of the Arabic *farah*, which is applied to every small rodent, with or without a qualifying adjunct.

No less than twenty-three species of this group were ascertained by us to inhabit Palestine. Among them are three species of dormouse, the largest of which (*Myoxus glis*) is six inches long without the tail, which is five inches more. The English dormouse we did not find There are four or five species of short-tailed voles, including the short-tailed field-mouse (*Arvicola arvalis*), which is very common, and is probably the mouse that ravaged the fields of the Philistines. There are six species of sand-rat (*Psammomys* and *Gerbillus*), one of them as large as a squirrel and much heavier. These animals burrow about the roots of bushes in the desert parts of the country, and among the rocks in the hilly districts, and are very pretty creatures, with a light buff back and white breast and belly; the tail is long and tufted. The hamster (*Cricetus auritus*), well-known in the eastern parts of Europe for the devastation it commits among the corn, and which lays up great stores of beans,

corn, and other provender for winter, sometimes to the weight of 100 lbs., preys upon the agriculture of Palestine.

Of the common rats and mice there are several species, some identical with our own. The most singular rodents of the country are the porcupine mice (*Acomys*), which inhabit only the ravines and barrens about the Dead Sea and the southern desert. Of these we found three species. They are most beautiful little creatures, of a light sandy colour above and white beneath, and covered all over the back with bristles, like a hedgehog. In one species these bristles, which are enormous for the size of the animal, extend only half way down the back. They are scarcely larger than a house-mouse, and are very little known.

Among the rodents we must not omit the jerboa (genera *Dipus* and *Alactaga*), included by the Hebrews and Arabs among the mice, and which must have been well-known to the Israelites. In Palestine they are confined to the sandy and desert districts, where they abound. We obtained four species. Nothing can be more beautiful than the gambols and kangaroo-like bounds of these pretty creatures, as they leap with amazing speed over the sand, and then suddenly disappear in their burrows. As is well known, with extremely short fore-legs, their hind-legs are as long as the body, and the tail considerably longer, while the fur is as soft as that of the chinchilla. In one of the small desert species before me (*Alactaga arundinis*), the body and hind-legs are each five and a half inches long, the whisker upwards of three inches, and the tail eight inches, with a fine bushy end, black, tipped with white. By this enormous tail, the little creatures steer themselves in their leaps—we might almost say flights—as they bound over the plains. The Arabs consider the jerboa a dainty morsel. In Northern Syria the hamster is eaten as a rabbit, and may be the very species referred to in Isaiah.

In the distorted account of the destruction of Sennacherib's army, related to Herodotus by the Egyptians, mice were said to have gnawed through the bowstrings, quivers, and shield covers in the night, and thus to have left the Assyrians helpless (Her. II. ch. 141).

Visitations of mice, similar to those of locusts in their destructive effects, are recorded in history to have oc-

curred in other countries as well as Palestine, especially in Spain and Italy.

MULE.—Heb. *pered, pirdah*, the masculine and feminine genders. The former is used very often in the Bible. The mention of mules does not occur until the time of David, when horses also began to be introduced. After this period they are spoken of as of common occurrence, and were ordinarily ridden by persons of rank, as by the king's sons (2 Sam. xiii. 29), by Absalom especially, who was riding a mule when he was slain (2 Sam. xviii. 9); by Solomon, who was mounted in state on the king's mule when proclaimed king (1 Kings i. 33). Solomon probably imported his mules from Egypt, along with horses; and the subject nations paid tribute each year in mules, along with other presents (x. 25). Afterwards they are spoken of as part of the royal stud, used for state, and sometimes for warlike, purposes. Thus, "Ahab said unto Obadiah, Go into the land. . . . peradventure we may find grass to save the horses and mules alive" (xviii. 5). So Isaiah pictures the Gentiles doing honour to Israel in the latter days, bringing their brethren "upon horses, and in chariots, and in litters, and upon mules, and upon swift beasts, to my holy mountain" (Isa. lxvi. 20). The Phœnicians were supplied with mules from Armenia: "They of the house of Togarmah [Armenia] traded in thy fairs with horses and horsemen [saddle-horses] and mules" (Ez. xxvii. 14).

Though generally employed for the saddle, the mule was also used for burdens. Thus, when David mounted the throne, Israel brought bread and provision "on asses and on camels, and on mules, and on oxen" (1 Chron. xii. 40). "Naaman said, Shall there not then, I pray thee, be given to thy servant two mules' burden of earth?" (2 Kings v. 17).

From the prohibition in Lev. xix. 19, it would seem the Israelites were forbidden to breed mules. This accounts for their introduction at so late a period in their history, and for the first mules we read of being imported. Afterwards, the Mosaic injunction may have been less strictly observed. On the return from Babylon, they brought with them 245 mules (Ezra ii. 66). They are not mentioned in the New Testament.

At present, mules are extensively employed both by men of peace in riding, and for bearing burdens,

throughout Palestine. Though inferior to the horse in speed, their surefootedness renders them more useful in riding over the hilly country, and their power of endurance is much greater. The Arabs never use them; but among the settled population, and in the cities, they are ridden by the mercantile and middle classes, horses being confined, for the most part, to the military and the Bedouin. For burdens mules are invaluable, as they carry a much heavier load than the camel, and on uneven ground can make a longer day's journey. They are much longer lived and hardier than horses, and consequently well-bred mules fetch in Syria a higher price than ordinary horses.

The word *recesh* is translated mule in Esth. viii. 10, 14. It should be 'dromedary.' [See DROMEDARY.] In Gen. xxxvi. 24 we read: "This was that Anah that found the mules [Heb. *yemim*] in the wilderness, as he fed the asses of Zibeon his father." This is no doubt a mistranslation. The word *yemim* does not occur elsewhere, but is rightly translated in the Vulgate, *Aquæ calidæ*, 'hot springs.' At that period horses were unknown in Canaan, but the discovery of hot springs would be thought deserving of record.

OX. [See CATTLE.]

PORCUPINE.—The Porcupine is nowhere mentioned in the sacred text, but many commentators believe that it is intended by the Hebrew *kippod*, translated 'bittern,' and which they suppose to be connected with the Arabic *kunfod*, 'hedgehog,' often also applied to the porcupine. The rendering of our translators appears preferable. [See BITTERN.]

The Porcupine (*Hystrix cristata*), is, however, very common in all the rocky districts and mountain glens of the Holy Land, and its flesh is esteemed a great delicacy. It is commonly believed by the natives to be a larger species of hedgehog, but is really an animal of a very different order, being a rodent, and placed by systematists not very far from the beaver on one side, and the guinea-pig on the other. It lives on roots and bark, and conceals itself in holes and crevices of the rocks, where it remains dormant during the winter, and is at all times a nocturnal animal. It is so common in the neighbourhood of the Dead Sea that a bundle of shed quills may be gathered among the rocks in a day

without trouble. Though very plentiful in every part of the country where the fissures of the cliffs afford it shelter, its special abundance in the Jordan Valley and by the Dead Sea may be accounted for by the fact that the porcupine does not require water, and can, therefore, find sustenance where few mammals, except the coney and the sand mice or *acomys*, can permanently reside. We never met with it alive, excepting when it had been trapped by the Arabs, but on three occasions I found decaying carcases; and once a skeleton. Their holes could always be recognised by their footmarks and the numbers of shed bristles strewn around, but they were in fissures far too deep and narrow to be accessible. None of the Arabs have discovered any method of driving the porcupine out of its fastness, and yet the creature is much prized, both for its flesh, which is esteemed a great delicacy, and for the quills, which are an article of commerce at Jerusalem. The ordinary mode of hunting it is to stop the earths during the night and wait for the animal's return about sunrise, when, having no power of escaping by flight, it is despatched with clubs. Sometimes a wire noose is suspended over the entrance of the hole. When approached at a distance from its refuge, it rolls itself into a ball like a hedgehog, and shoots out its short, stiff bristles against its assailant. The porcupine is found in Southern Europe, the whole of North Africa, and Western Asia. Elsewhere its place is taken by other similar species.

Pygarg. Heb. *dîshôn*.—In the Septuagint πύγαργος occurs only once, in the list of animals permitted for food in Deut. xiv. 5. Our translators have followed the Greek; but unfortunately we have no certain knowledge of the animal intended by the ancients under the name of pygarg, beyond the fact that it was a species of antelope in North Africa. Very possibly *pygargus* was a generic name for all the 'white-rumped' antelopes, of which there are several; and it seems now clearly established that the pygarg of Pliny was not, as has been supposed, the *Antilope addax*, but that the latter is the same as the Strepsiceros of Pliny, being called by the Arabs *adas* or *akas*, the very name which Pliny gives as the local one of his Strepsiceros. But it does not, therefore, follow that the addax is not the same as the Hebrew *dîshôn;* and, after a careful examination of the Hebrew names for the antelopes, and of the species known to exist in Bible lands, I can scarcely come to any other conclusion than to assign the addax to the term *dîshôn*.

There are four antelopes found in Palestine or the neighbourhood, and four Hebrew words generally admitted to apply to the genus. Taking then the 'roe' to be the gazelle, the 'wild bull' to be the bubale, the 'fallow-deer' for the oryx, there remains but the addax to represent the 'pygarg' of Deuteronomy. The addax (*Antilope addax*) has a wide range, being found rather commonly, but not in large herds, in the Sahara, Nubia, Egypt, and Arabia. I never obtained it, but have been near enough to identify it by its horns, on the Arabah, to the south of the Dead Sea, where it is well known to

ADDAX. (*Antilope addax.*)

the Bedouin. It is a large animal, over three and a half feet high at the shoulder, and with its gently-twisted horns two and a half feet long. As the horns, though slightly spiral, stretch straight from the head, it can at once be distinguished from the oryx or the bubale. Its colour is pure white, with the exception of a short black mane, and a tinge of tawny on the shoulders and back.

ROE, ROEBUCK. Heb. *tzebi*, *tzebiyah*.—There is no doubt that the 'roebuck' or 'roe' of our version is the *ghazal* of the Arabs, the gazelle of modern writers and poets. It was among the animals specially permitted for food by the

law of Moses (Deut. xiv. 5), and its flesh was held in high esteem, as may be seen from the repeated expressions: "The unclean and the clean may eat thereof, as of the roebuck [*tzebi*], and as of the hart" (Deut. xii. 15, 22; xv. 22). Gazelles were also among the viands provided for the royal table of Solomon: "Harts, and roebucks, and fallow-deer, and fatted fowl" (1 Kings iv. 23).

But it is not so much because it yields savoury meat, as from its swiftness, grace, beauty, and gentleness, that the gazelle is best known. These characteristics are frequently mentioned. Asahel, the brother of Joab "was

GAZELLE.

as light of foot as a wild roe" (2 Sam. ii. 18). Of the Gadites who joined David in the wilderness, we are told they were men "whose faces were like the faces of lions, and were as swift as the roes upon the mountains" (1 Chron. xii. 8). Its timidity supplies an image of the terror with which the anger of the Lord would inspire the world: "It shall be as the chased roe, and as a sheep that no man taketh up" (Isa. xiii. 14). "Deliver thyself as a roe from the hand of the hunter, and as a bird from the hand of the fowler" (Prov. vi. 5). Its beauty rendered it a favourite term of comparison or endearment in love, just as now every Arab poet compares the object of his

admiration to the black-eyed gazelle: "The voice of my beloved, Behold he cometh leaping upon the mountains, skipping upon the hills. My beloved is like a roe, or a young hart" (Cant. ii. 9). "Turn, my beloved, and be thou like a roe, or a young hart upon the mountains of Bether" (v. 17). "Make haste, my beloved, and be thou like to a roe, or to a young hart upon the mountains of spices" (viii. 14). The feminine form of the word was used as expressive of beauty, and applied as a female name, 'Tabitha,' rendered in Greek δορκὰς, or 'gazelle' (Acts ix. 36).

DORCAS GAZELLE. (*Gazella dorcas.*)

The gazelle (*Gazella dorcas*) is by far the most abundant of all the large game in Palestine; indeed it is the only wild animal of the chase which an ordinary traveller has any chance of seeing. Small herds of gazelle are to be found in every part of the country, and in the south they congregate in herds of near 100 together. One such herd I met with at the southern end of the Jebel Usdum, or salt mountain, south of the Dead Sea, where they had congregated to drink of the only sweet spring within several miles, Ain Beida. Though generally considered an animal of the desert and the plains,

the gazelle appears at home everywhere. It shares the rocks of Engedi with the wild goats; it dashes over the wide expanse of the desert beyond Beersheba; it canters in single file under the monastery of Marsaba. We found it in the glades of Carmel, and it often springs from its leafy covert on the back of Tabor, and screens itself under the thorn bushes of Gennesaret. Among the grey hills of Galilee it is still 'the roe upon the mountains of Bether," and I have seen a little troop of gazelle feeding on the Mount of Olives, close to Jerusalem itself.

While in the open grounds of the south, it is the wildest of game, and can only be approached, unless by chance, at its accustomed drinking-places, and that before the dawn of morning: in the glades of Galilee it is very easily surprised, and trusts to the concealment of its covert for safety. I have repeatedly startled the gazelle from a brake only a few yards in front of me, and once, when ensconced out of sight in a storax bush, I watched a pair of gazelle with their kid, which the dam was suckling. Ever and anon both the soft-eyed parents would gambol with it as though fawns themselves.

In Gilead, in the forest districts especially, east and north of Jebel Ajlun, the ariel gazelle (*Gazella arabica* or *cora*) is extremely numerous, and in riding among the oaks we were continually putting up small troops. It is, if possible, a more beautiful creature than the common gazelle, of which it is now considered only a local variety. Both have the white and dark stripes down the face, and the white mark on the hind quarters, with the under parts white, but the back of the Arabian gazelle is a darker fawn colour, and the dark mark along the flanks is deeper, indeed almost black. The horns of the female are much smaller than those of the male. Although the gazelle is so varied in markings on close inspection, yet it is very difficult to detect a herd at a distance in the desert, so exactly does their colouring harmonize with the general tone of the landscape.

The usual way of hunting the gazelle is by lying in wait, either at its watering places, which are always known to the Arabs, or in the defiles in the rocky districts. A more wholesale mode is practised in the Hauran, by driving a herd into a decoy enclosure, with a pitfall on the other side, where they are easily taken.

When in company with great sheikhs, I have more

than once had an opportunity of witnessing the chase of the gazelle, after the only fashion which the high-bred Bedouin thinks sportsmanlike, viz., with the greyhound or the falcon, or more often with both combined. When the greyhound, which is the large Persian dog, with long silky ears and silky tail, is employed alone, success is very uncertain, and the roe often "delivers itself from the hand of the hunter." When the chase is conducted with the falcon alone, the bird is trained to dash repeatedly at the head of the victim, taking an instinctive care not to impale itself on its horns (which nevertheless often happens), and by its feints so to delay the quarry that the horsemen are able to come up with it. But the favourite chase is by both bird and dog. The birds are first swung off at the gazelle, and make repeated swoops, while the greyhound gains upon it and seizes it. With a well-trained bird the poor beast can rarely escape in this chase, unless he have a long start of the hunter.

The flesh of the gazelle, though of high repute, we did not find so savoury as that of the wild goat. Indeed it was generally very dry and always lean, but our taste is not that of the Arabs. The gazelle, when taken young, can be easily tamed, and is very docile and affectionate. We caught a young one near Shiloh, which I kept for several weeks, and which had become familiar, when, in a moment of sudden fright, it strangled itself among the tent-cords. I also caught young fawns near Engedi, and near Nazareth, but failed in bringing them alive to England. The gazelle is found over all North Africa, and Upper Arabia. The ariel gazelle extends from Syria, across Persia, to India.

In Prov. v. 19, *ya'elah*, 'wild she-goat,' is translated 'roe': "Let her be as the loving hind and pleasant roe," used, like 'gazelle,' as a term of endearment. The Arabs have the phrase, 'more beautiful than a wild goat.'

SATYR.—The translation of the Hebrew *sa'ir*, in Isa. xiii. 21: "Their houses shall be full of doleful creatures; and owls shall dwell there, and satyrs shall dance there." And xxxiv. 14: "The wild beasts of the desert shall also meet with the wild beasts of the island [Heb. jackals], and the satyr shall cry to his fellow"—in which passages the prophet predicts the destruction of Babylon and of Idumea.

The common meaning of *sa'ir*, *se'irim*, is he-goats, in which sense it is often used. But two passages, in which it has a very different sense, throw light on its signification when translated 'satyr,' for it is certain 'the goat' is not intended in the texts quoted above, but some other sense derived from the same radical signification, *i.e.*, 'hairy.' In Lev. xvii. 7, we read, "They shall no more offer their sacrifices unto devils" [Heb. *se'irim*]; and 2 Chron. xi. 15, Jeroboam "ordained him priests for the high places and for the devils [Heb. *se'irim*], and for the calves which he had made." These devils, or *se'irim*, Bochart and many other commentators consider to be the goat-gods of Egypt, an idol half goat, half man, with the worship of which the Israelites had been familiar in Egypt, and which Jeroboam re-introduced from thence; and consequently, the *se'irim* of Isaiah's prophecy would mean really what we understand by Satyrs, *i.e.*, demons of the woods and desolate places, with the human head and arm, and the body and legs of a goat. The popular superstitions of Arabia and Syria are full of such fabled monsters, which people all the ruins.

There is another interpretation that the *se'irim* are baboons, and we know from the Egyptian monuments that the dog-faced baboon, or *Cynocephalus*, was an object of worship, and must have been brought to the Nile from the interior of Africa, unless it has since become extinct in Egypt. At the same time, the "Mocko" or *Macacus arabicus* reaches now up to the confluence of the Tigris with the Euphrates, and to Temana on the Euphrates (see Rich. Mesopotamia), while the larger *Cynocephali* are not unknown in Arabia. Possibly the desolation of Babylon may have given space and scope for the encroachment of these creatures further east than usual, and their presence may have suggested the imagery to the mind of the prophet in the passages quoted.

Some difficulties have been suggested with respect to the translation of 'satyrs' for *se'irim*, from the admittedly fabulous character of the animal. But the only passages where it is thus translated are in the poetical portion of Isaiah; and on comparing them with the use of the word in the passages of Leviticus and Chronicles above referred to, we see that there it must be interpreted of some ideal demon. The Egyptian goat-worship was, as we know from their monuments, not that of the existent goat, like

their worship of the embodied apis or serapis, but of a satyr, depicted much as the vicious monster of Greek and Roman mythology. Bochart suggests another interpretation, deriving *se'îrîm* from a Phœnician root implying song, and proposes the rendering 'wailers,' *i.e.* simply 'the wild beasts,' or also 'ostriches,' that wail among ruins. This derivation is less satisfactory.

SHEEP.—Collectively 'a flock of sheep,' Heb. *tzôn;* a single sheep or goat, *seh;* a ram, *ayil;* an ewe, *rakhal;* a young sheep of more than a year old (generally translated lamb), *kebes*, feminine, *kebesah;* a suckling lamb, *taleh*. *Car* is used for a young lamb in the pasture.

The sheep is the first animal distinguished by name in sacred history. Immediately after the fall we find Abel offering of the firstlings of his flock to the Lord (Gen. iv. 4). No wild original of the sheep (*Ovis aries*) has been found; for though various species of wild sheep, as the aoudad, exist, they must be looked upon as congeners rather than as progenitors of the domesticated animal. In the days of the patriarchs sheep were the most important part of the possessions of a rich man, and the greatest source of his wealth. In some parts of the Arabian desert they gave place to the camel; but generally, until land came to be assigned to individuals, the facility which existed for moving flocks from an exhausted pasture to fresh ground, according to the season or the supply of water, enabled the patriarchs to count their flocks by the thousands.

In the time of Abraham there was no actual permanent possession of land, excepting in the immediate outskirts of the town, as at Shechem or Hebron; and, until population increased, any soil untilled was common property to the tribe that roamed over the district and to those in amity with them. The only claim to property in the soil was actual tillage, and while tillage was in its infancy, excepting on the banks of the Nile, and perhaps the Euphrates, the sole measure of wealth was the number of the flocks and herds.

Among these, sheep held the first place, not only for their flesh and milk, which the goats could equally supply, but especially from their wool, which, at a period when cotton and silk were unknown, and flax was very scarce, and scarcely to be obtained out of Egypt, formed the sole material for clothing. Thus Job possessed 7000

sheep originally, and after his recovery 14,000, while of camels he had 3000, 1000 head of horned cattle, and 500 she-asses. Abraham was very rich in cattle (including sheep), and Lot also had flocks and herds and tents (Gen. xiii.). Abraham's servant speaks of the flocks and herds which the Lord had given his master (xxiv. 35) and Isaac was so rich in them that the Philistines envied him (xxvi. 14).

The rich country of Gilead, Ammon, and Moab was pre-eminently the land of sheep pasture, as it is to this day. "The king of Moab was a sheep-master, and rendered unto the king of Israel an hundred thousand lambs, and an hundred thousand rams, with the wool" (2 Kings iii. 4); and I have sat under the tent of a Beni Sakk'r sheikh, who pastures his sheep in the ancient plains of Moab, and boasts of counting 30,000 in his flocks. The Hagarites, or Hagarenes, the tribe who encamped just east of the frontiers of Moab and Ammon, lost 250,000 sheep in their struggle with the Reubenites, who took their territory (1 Chron. v. 21). Solomon's table consumed daily 100 sheep, and he celebrated the dedication by the sacrifice of 120,000. In the days of Asa 7000 sheep were offered at one time (2 Chron. xv. 11). At the re-dedication, under Hezekiah, the king gave 7000 and the princes 10,000 sheep to feast the people.

What was the exact number of sheep brought out of Egypt by the Israelites we have no record, but there can be no doubt the number was very great, and that they had multiplied exceedingly in the land of Goshen. Afterwards sheep were the sole wealth of the tribes east of Jordan and of Southern Judæa, though in the hilly central regions, along with the increase of the population, agriculture supplanted a pastoral life. Thenceforth sheep are spoken of as forming the wealth rather of the bordering tribes than of Israel itself. It was Arabia that principally supplied the markets of Tyre: "Arabia, and all the princes of Kedar, they occupied with thee in lambs, and rams, and goats" (Ez. xxvii. 21). The Arabians brought Jehoshaphat "flocks, seven thousand and seven hundred rams and seven thousand and seven hundred he-goats" (2 Chron. xvii. 11). The flocks of Kedar, and the rams of Nebaioth, are spoken of by Isaiah (lx. 7), as typifying the whole people of North

Arabia. But it is needless to multiply passages to show the importance of sheep in the Old Testament period. Suffice it to say that the sheep is mentioned about 500 times in the sacred writings.

Nor does the number of the sheep seem to have diminished at the present day on the east of Jordan, in spite of the impoverishment of the land. In the prophecy of Ezekiel we read: "I will make Rabbah a stable for camels, and the Ammonites a couching-place for flocks" (xxv. 5). No country could be conceived more adapted by nature for flocks than the rich plateaux whence the feeders of the Jabbok rise in the ancient Ammon. The land is almost treeless, well watered everywhere. Never did I see such a display of pastoral wealth as met our eyes in the neighbourhood of desolate Rabbah. It was the early spring, when the grass was shooting forth in its first freshness. The sheep of the great tribes of the Adwân and the Beni Sakk'r had gathered here from far and near; and mile after mile we rode through flocks countless as the sand, while winding up the gently sloping valley, at the head of which stand the magnificent but lonely ruins of the great city. To the open spaces among the temples the sheep and goats were driven at night, and their bleating was almost deafening.

The sheep was pre-eminently the animal of sacrifice. Its use as food was partly the cause of this, but also the universal selection of the lamb as the type of innocence and purity. There were few sacrifices for which the lamb or the ram were not admissible. The male lamb is in most cases specified. Beyond its other significance, this restriction of the sex of the sacrifice was a consi derate provision for the increase of the flock. For the Passover no other animal than the male lamb or kid was admissible. While for the sin-offering a ruler offered a male kid, any one of the common people was to offer a female kid or lamb, the only instance in which the ewe lamb was specially prescribed; and in the trespass-offering a ram alone could be offered. The only sacrifice from which the ram or lamb seems specially excluded was that of the great day of Atonement, when the two goats are specified without alternative.

Excepting for sacrifice, sheep were usually only slain on occasions of special festivity: nor did the Jews indulge in flesh meat at their ordinary meals; but, like the

Orientals at the present day, they always welcomed a friend or a stranger as guest with the kid or the lamb.

A more important item in their daily food was the milk of their ewes: "Butter of kine and milk of sheep" (Deut. xxxii. 14). "Who feedeth a flock, and eateth not of the milk of the flock?" (1 Cor. ix. 7). Ewes' milk is held in higher esteem than that of cows in the East, and is considered peculiarly rich for '*leben*' or soured curds. For butter goats' milk is preferred, but ordinarily the sheep and goats are milked indiscriminately, the lambs and kids being penned up from them in the night, that their owners may get the first share of the milk. We found it considered highly dishonourable among the Bedouins to sell milk. A draught from the flock was spontaneously offered to the passing strangers, but payment was promptly refused, by men who just before had been begging from us, and who would take the first opportunity of robbing us.

Next to the milk in the value of an eastern flock comes the wool. "The first of the fleece of the sheep" was to be the portion of the priest (Deut. xviii. 4). Solomon exhorts his son: "Be thou diligent to know the state of thy flocks. . . . The lambs are for thy clothing" (Prov. xxvii. 23, 26). So the virtuous woman "Seeketh wool and flax, and worketh willingly with her hands" (xxxi. 13). And Job exclaims: "If I have seen any perish for want of clothing, or any poor without covering; if his loins have not blessed me, and if he were not warmed with the fleece of my sheep" (xxxi. 19, 20). The importance of the fleece is incidentally shown in the mention of the tribute of Mesha, king of Moab, of 100,000 rams with the wool. Tyre was supplied with wool from the flocks of Damascus: "Damascus was thy merchant . . . in white wool" (Ez. xxvii. 18): and the wool of Damascus was said to equal that of Miletus, the finest in the ancient world. At present, the quality of the Syrian wools varies as widely as do those of the Merino and of the Blackfaced Highland breeds. There is a very fine soft wool grown in the Belka and in Moab, and the fleeces of some of the short-woolled Lebanon sheep are choice, while the middle districts of Palestine produce a long woolled, but rather coarse fleece.

Wools were dyed various colours, especially purple

and scarlet, in which art the Tyrians were without a rival: "Blue and purple from the isles of Elishah [Greece] was that which covered thee" (Ez. xxvii. 7, [On the art of dyeing, see Chap. xi. CRIMSON-WORM and PURPLE.] The Israelites had probably learnt the art of dyeing wool in Egypt, for in the commencement of the Exodus curtains of blue, purple, and scarlet were prepared for the Tabernacle (Ex. xxvi. 1).

What the harvest was to an agricultural, that the sheep-shearing was to a pastoral people; celebrated by a festival corresponding to our harvest home, marked often by the same revelry and merry-making. It was when Laban was occupied with his sheep-shearing that Jacob took the opportunity of going off with his wives, cattle, and possessions. Judah, after the death of his wife, "Was comforted, and went up unto his sheep-shearers to Timnath, he and his friend Hirah the Adullamite" (Gen. xxxviii. 12). The story of Nabal the churl is told in 1 Sam. xxv., how he had three thousand sheep in Carmel, gathered thither from the southern wilderness for the shearing; and how, when David and his men, who had been a wall to them both by night and day, when encamped in the wilderness, applied to share in the festivities, he insolently replied to the outlaw: "Shall I then take my bread, and my water, and my flesh that I have killed for my shearers, and give it unto men whom I know not whence they be?" The revels continued for some days: "Nabal held a feast in his house like the feast of a king, and Nabal's heart was merry within him, for he was very drunken." It was at his own sheep-shearing in Baal-hazor, to which he had specially invited all the king's sons, that Absalom contrived and executed the assassination of his brother Amnon, "when his heart was merry with wine" (2 Sam. xiii. 23–6).

The Syrian ram has very large recurved horns, which were applied to many purposes. We find them used to make a musical instrument or trumpet blown by the priests (Josh. vi. 4). But their common use was as a flask, especially to carry oil: "Fill thine horn with oil, and go, I will send thee to Jesse the Bethlehemite" (1 Sam. xvi. 1). For this purpose, the broad end of the horn was tightly plugged, and a small hole pierced at the point. Such horns are still in constant use as flasks among the Arabs, and especially for gunpowder.

We do not find sheepskins in such repute for their leather as goatskins. But the inner covering of the Tabernacle was of rams' skins dyed red (Ex. xxvi. 14). Of the persecuted saints of old we read: "They wandered about in sheepskins and goatskins" (Heb. xi. 37). The 'leathern girdle' of John the Baptist was probably the untanned sheepskin, such as is still worn by all the shepherds, both of the south country of Judæa and of the Lebanon. These sheepskin coats are familiar to all who have visited eastern countries.

SYRIAN SHEEP.

The manner of tending sheep in the East is very different from that practised among ourselves, and supplies many illustrations to the poetry and the parables of Holy Writ. The sheep districts consist of wide open wolds or downs, reft here and there by deep ravines, in whose sides lurk many a wild beast, the enemy of the flocks. During the day the sheep roam at will over a wide extent of common pasture, only kept from encroaching on the territory of another tribe. In the evening they are gathered into folds. These folds are, in most parts of the country, the natural caves or old dwellings of the Horites, adapted for the purpose, with a low wall built

outside them, as may be seen in Mount Quarantania, near Jericho, in the glens near the Lake of Galilee, and in the hill country of Judah.

Elsewhere, a simple boundary wall, with an entrance, is built in the open ground. Owing to the multitude of jackals and wolves, the shepherds are obliged to keep watch over their flocks by night. Thus the shepherds of Bethlehem were "abiding in the field, keeping watch over their flock by night," when the angel of the Lord came, and announced to them "the good tidings of great joy to all people" (Luke ii. 8, &c.).

The same practice continues to this day. Even on the highest ridges of Lebanon, far above human habitations, we found little depressions where the shepherds had contrived sleeping places for themselves, a number of oblong circles of stones, inside of which rushes were collected for bedding. These simple beds were arranged in a circle, and sticks and roots were collected in the centre for a fire; a few pots and pans stood by them, and the sheepskins and old rugs were left in their places under the guardianship of three or four faithful watchdogs, whose vigilance was sufficient protection while their masters wandered during the day with their flocks. We often met the shepherds miles away from their stations. It is their ordinary summer habit in the Lebanon to live thus in the open air, as they do in the south throughout the year.

In the open district east of Jordan there are no caves, and so the children of Reuben said to Moses: "We will build sheepfolds here for our cattle" (Num. xxxii. 16). To these sheepfolds Reuben still continued devoted, and forgot the troubles of his brethren: "Why abodest thou among the sheepfolds, to hear the bleatings of the flocks? For the divisions of Reuben there were great searchings of heart" (Judg. v. 16). But in the hill-country of Judah the folds were in caves. Thus Saul, when in search for David, "came to the sheepcotes by the way, where was a cave" (1 Sam. xxiv. 3). In such folds David had passed his youth: "I took thee from the sheepcote, from following the sheep, to be ruler over my people, over Israel" (2 Sam. vii. 8; Ps. lxxviii. 70). And as the traveller passes over the Philistian plain, and sees the ruined cities, with rude hovels and sheepfolds built of their fragments, who can forget the denunciation

of the prophet: "The sea coast shall be dwellings and cottages for shepherds, and folds for flocks" (Zeph. ii. 6)?

Our Lord has chosen the folding of the sheep as the illustration of his tender charge over his church and people: "He that entereth not by the door into the sheepfold, but climbeth up some other way, the same is a thief and a robber. But he that entereth in by the door is the shepherd of the sheep. To him the porter openeth; and the sheep hear his voice; and he calleth his own sheep by name, and leadeth them out. And when he putteth forth his own sheep, he goeth before them, and the sheep follow him: for they know his voice. And a stranger will they not follow, but will flee from him: for they know not the voice of strangers" (John x. 1–6).

Fully to enter into the force of the illustration, we must remember that the eastern shepherd never *drives*, but always leads, his sheep, and that without the aid of a dog. The old rams are often decorated with bells, and share his confidence in a special degree. On the hill-side he searches out the choicest morsels of herbage, and calls the sheep to partake of them. They have the attachment of a dog to their master. We once observed a shepherd playing with his flock. He pretended to run away; the sheep ran after him, and surrounded him; then to climb the rocks, the goats pursued him; and finally all the flock formed in a circle gambolling round him. "Thou leddest thy people like a flock by the hand of Moses and Aaron" (Ps. lxxvii. 20). "Give ear, O Shepherd of Israel, thou that leadest Joseph like a flock" (lxxx. 1).

The shepherd is often laden with the young lambs which are too tender to follow with the rest. I have often seen a shepherd carrying a lamb under each arm, and two or three more in the hood of his cloak as he led the flock. "He shall feed his flock like a shepherd: he shall gather the lambs with his arm, and carry them in his bosom, and shall gently lead those that are with young" (Isa. xl. 11).

In illustration of our Lord's parable, we may repeat the oft-quoted extract from *Hartley's Researches*: "I asked my man if it was usual in Greece to give names to sheep. He informed me that it was, and that the sheep obeyed their shepherd when he called them by their names. This morning I had an opportunity of verifying the

truth of this remark. Passing by a flock of sheep, I asked the shepherd the same question which I put to my servant, and he gave me the same answer. I then bade him to call one of his sheep. He did so, and it instantly left its pasturage and companions, and ran up to the hand of the shepherd with signs of pleasure, and with a prompt obedience which I had never before observed in any other animal. The shepherd told me that many of his sheep are still *wild:* that they had not yet learned their names, but that by teaching they would all learn them. The others, which knew their names, he called *tame* (p. 308).

"It is necessary the sheep should be taught to follow, and not to stray away into the unfenced fields of corn which lie so temptingly on either side. Any one that thus wanders is sure to get into trouble. The shepherd calls sharply from time to time to remind them of his presence. They know his voice and follow on; but if a stranger call they stop short, lift up their heads in alarm, and if it is repeated they turn and flee, because they know not the voice of a stranger. This is not the fanciful costume of a parable; it is simple fact. I have made the experiment repeatedly." (*Thomson, Land and Book*, p. 203.)

The dog is used by the shepherd in the East as in the West, but in a very different way. The shepherd's dog of Syria is not the intelligent companion and henchman of his master; he is simply the guardian of the flock at night from wild beasts. The dogs are usually kept in some numbers, not less than six together. They lie outside the fold, and raise their defiant bark whenever the jackal's howl is heard. Notwithstanding their use, they are hardly treated, kicked, and half-starved; yet their fidelity is unswerving. They are very like the Scotch sheep-dog in shape and size, and are, I believe, merely the Pariah dog of the towns attached to an individual owner. That they were always treated with contempt is evident from the expression of Job: "They that are younger than I have me in derision, whose fathers I would have disdained to have set with the dogs of my flock" (xxx. i.).

In the East the sheep requires water daily, owing to the heat and dryness of the climate, whereas in England it never drinks. Many of the most attractive scenes of Oriental life and history cluster round the sheep-troughs.

It was at the well where they waited to water the sheep that Jacob first saw his cousin Rachel, and "went near, and rolled the stone from the well's mouth, and watered the flock of Laban, his mother's brother, and Jacob kissed Rachel, and lifted up his voice, and wept" (Gen. xxix. 10, 11). By a well in the land of Midian the exiled Moses sat down, and defended the seven daughters of Reuel from the shepherds, who would have disputed their right of watering their flocks; and for his gallant

WATERING THE FLOCKS.

protection was soon rewarded by finding a home and a wife among the seven (Ex. ii. 16–21).

And still "the places of drawing water," when the land is free from "the noise of archers," are the spots where the youth and girls of Bedouin life congregate, and at the wells alone is Oriental courtship carried on to this day. The Syrian girl, especially if a Druse or Christian, unlike the secluded daughter of the towns, is frequently entrusted, like Rachel or Zipporah, with the care of her father's flock. The well, the most precious of possessions, is carefully closed with a heavy slab until all those whose flocks are entitled to share its water have gathered. The time is noon. The first comers gather and report

the gossip of the tribe. The story of Gen. xxix. is, in its most minute details, a transcript of the Arab life of to-day: "It is yet high day, neither is it time that the cattle should be gathered together [*i.e.*, to be folded for the night]: water ye the sheep, and go and feed them. And they said, We cannot, until all the flocks be gathered together, and till they roll the stone from the well's mouth; then we water the sheep" (verses 7, 8). Then follow the arrival of Rachel, the claim of relationship, and the brotherly kiss, with the home found in Laban's house. Though Mohammedanism has sadly degraded woman, and restricted her freedom, yet the daughters of the desert can still choose indirectly for themselves among their comrades at the well; and they are always eager to offer the stranger, though no Mohammedan, a draught of milk.

Sheep are often made pets of, especially by the poor in the towns, who will rear in their court-yards one or two ewe lambs, for the sake of their milk; though it is not uncommon to see a foundling lamb under the tent of the nomad admitted to intimate familiarity. Nathan's parable to David was taken from every-day life.

There are two breeds of sheep, so far as I could judge from observation, in Palestine. In the northern hills there is a breed apparently not unlike the merino, with short fine wool, well-shaped, short and fine legs. The common Syrian sheep is much taller, large boned, with a broad flat tail, hornless head (excepting in the rams), and long Roman nose, such as we see represented in Italian landscapes. The peculiarity of this breed, which by some has been distinguished from the common sheep (*Ovis aries*) under the name of *Ovis laticaudata*, is the enormous development of fat on the tail. This is the only race we noticed in the southern parts of the country, and it seems to have been the breed of the ancient Israelites, the fat of the tail being spoken of as 'the rump': "Thou shalt take of the ram the fat, and *the rump*, and the fat that covereth the inwards" (Ex. xxix 22). This fat tail or rump was thus used to feed the flame of the sacrifice: "The fat thereof, and the whole rump, it shall he take off hard by the backbone. . . . and the priest shall burn it upon the altar" (Lev. iii. 9, 11), &c.

Both Herodotus and Aristotle especially mention the broad-tailed sheep of Arabia and Syria. The tail is simply

a mass of fat, and is used for grease, for lamps, and for cooking. The Arabs fry it in slices, and esteem it a delicacy, but it is very like fried tallow. The enormous development of the tail appears to abstract both flesh and fat from the rest of the body. Though the carcase does not weigh more than fifty or sixty pounds, the tail will average ten pounds, and I have known it fourteen pounds. The horn of the Syrian ram is very large, not spiral, but recurved under the ears.

The colour of the sheep is as generally white as that of the goat is black: "He giveth snow like wool" (Ps. cxlvii. 16). "Though they be red like crimson, they shall be as wool" (Isa. i. 18). "Whose garment was white as snow, and the hair of his head like the pure wool" (Dan. vii. 9). But though black sheep are uncommon, tawny, or, as they are called in Genesis, 'brown,' they are very numerous in every flock. They are generally piebald with white, and the colours, very distinct in the young lamb, become less distinct in the old sheep, so that when the wool is long they look rather discoloured than parti-coloured. The general predominance of white among the sheep is shown in the story of Jacob's stratagem with Laban's sheep, when all the parti-coloured goats and brown sheep were to be his. When, by God's special blessing, the flocks became rapidly transferred to Jacob, his uncle again changed his wages, and the variation of colours resumed their ordinary proportions. Jacob's device for multiplying the ringstraked, speckled, and spotted, was clearly one that would have had no effect without divine interposition. See Gen. xxx. 32–42.

We can scarcely conclude the notice of the sheep without recalling how constantly in the New Testament our Divine Redeemer is set forth as the Lamb of God. This is clearly not only as the lamb is an emblem of meekness, patience, and submission, but, above all, as *the Sacrifice*, "which taketh away the sins of the world." It is not "the lamb" merely, but "the Lamb *as it had been slain*," "the Lamb slain from the foundation of the world," "the Lamb brought to the slaughter," that is the type of Christ, the one offering once for all. Any interpretation short of this falls miserably short of the Gospel signification, which is the sacrificial lamb led to death, to bear the sin of the world, and by His sufferings and death to annul and remove it.

SPECKLED-BIRD. [See HYÆNA.]

SWINE, Heb. *chazir*, Gr. χοῖρος, was looked upon as the most unclean of all forbidden animals: "The swine, though he divide the hoof, and be clovenfooted, yet he cheweth not the cud; he is unclean to you" (Lev. xi. 7; Deut. xiv. 8). Every passage in which it occurs marks the aversion of the Jews to this animal, and the horror with which they regarded the eating it: "Which eat swine's flesh, and broth of abominable things is in their vessels" (Isa. lxv. 4). "He that offereth an oblation, as if he offered swine's blood" (lxvi. 3). "They that sanctify themselves . . . eating swine's flesh, and the abomination, and the mouse, shall be consumed together, saith the Lord" (verse 17). Various proverbs show the contempt in which it was held, and its incongruity with anything fair or clean: "As a jewel of gold in a swine's snout, so is a fair woman which is without discretion" (Prov. xi. 22). "Neither cast ye your pearls before swine, lest they trample them under their feet, and turn again and rend you" (Matt. vii. 6). "The true proverb, The dog is turned to his own vomit again; and the sow that was washed to her wallowing in the mire" (2 Pet. ii. 22). This horror of swine has been, if possible, intensified among the Mussulmans. But the Canaanites not only ate its flesh, but offered it in sacrifice; and though the Jews did not rear pigs themselves, they were kept largely in Syria.

In our Lord's time they had become less scrupulous, and His permission to the evil spirits He had expelled to enter the herd of swine of the Gergesenes, by which means the whole herd was destroyed, was doubtless a practical rebuke of their virtual disregard of their law, in rearing, even though they might not eat, the unclean beast. "Touch not the unclean thing." They probably kept these swine as a matter of trade with the Gentiles, who formed a large proportion of the population east of the Lake of Galilee. The Gentile custom of keeping herds of swine is also alluded to in the parable of the prodigal son, who was sent into the fields to feed swine, the most degrading employment conceivable for a Jew.

At the present day swine are scarcely ever seen in Palestine. Most of the native Christians abstain from pork, out of a prudential consideration for the scruples of their Moslem and Jewish neighbours, and it is only

the Europeans who indulge in it. Indeed, I never but once saw a tame pig in the Holy Land, and that was in the seaport town of Caiffa. The Egyptians and the Phœnicians also esteemed the swine unclean. (App. Note C.)

Unicorn. Heb. *reêm*.—Our translators have unfortunately adopted the rendering of the Septuagint, 'the one-horned' for *reêm*, which is no fabled monster, but a two-horned reality, a beast which once roamed freely through the forests of Palestine, but now extinct, 'the Aurochs' of the old Germans, the *Urus* of Cæsar, *Bos primigenius* of naturalists. Its characteristics are clearly set forth in the passages where the *reêm* is named. Its prodigious strength is noted by Balaam, speaking of the might of Israel: "He hath, as it were, the strength of an unicorn [Heb. *reêm*]" (Numb. xxiii. 22). Again in the prophetic blessing of Joseph by Moses: "His glory is like the firstling of his bullock, and his horns are like the horns of an unicorn [not 'unicorns,' as in the text]: with them he shall push the people together to the ends of the earth, and they [the horns] are the ten thousands of Ephraim, and they are the thousands of Manasseh" (Deut. xxxiii. 17). The marginal reading of our bible, 'an unicorn,' is here undoubtedly correct, so far as regards the singular number, and nothing could prove more clearly than this passage that the unicorn was a *two-horned* animal. For the two horns of the *reêm* are the ten thousands of Ephraim, and the thousands of Manasseh, both growing out of *one* head, Joseph. This, then, entirely sets aside the fancy that the rhinoceros, which the Jews could scarcely have known, or any one-horned creature, is intended.

The fierce and dangerous nature of the *reêm* is mentioned in Ps. xxii. 21: "Save me from the lion's mouth: for thou hast heard me from the horns of the unicorns." And again: "The unicorns shall come down with them, and the bullocks with the bulls; and their land shall be soaked with blood" (Isa. xxxiv. 7). Its horns were of great size as well as strength: "My horn shalt thou exalt like the horn of an unicorn" (Ps. xcii. 10). In the activity and playfulness of its young it is coupled with the cattle: "He maketh them also to skip like a calf; Lebanon and Sirion like a young unicorn" (Ps. xxix. 6). But in Job we find a yet fuller description of its strength and untameableness: "Will the unicorn [*reêm*] be will-

ing to serve thee, or abide by thy crib? Canst thou bind the unicorn with his band in the furrow? or will he harrow the valleys after thee? Wilt thou trust him, because his strength is great? or wilt thou leave thy labour to him? Wilt thou believe him that he will bring home thy seed, and gather it into thy barn?" (Job xxxix. 9–12).

In weighing all these passages together we must note how the *reêm* is associated repeatedly with cattle; spoken of by Isaiah as an animal suitable for sacrifice, and as one frequently seen, and with which the Israelites were familiarly acquainted. (See Appendix, Note D.)

There is no difficulty in the fact of there being no living species of wild cattle at the present day in Bible lands, for the larger wild beasts have rapidly waned before the advance of man, and many creatures we hitherto have known only by fossil or semi-fossil remains, seem likely to prove to have been his contemporaries. Bochart and others suppose the *reêm* to be the oryx, or white antelope, which has long horns, and which now inhabits the regions adjacent to Palestine. This is chiefly grounded on one of its Arabic names, *rîm*.

But the oryx (see BULL, WILD) no way meets the biblical description, and as to the similarity, but not identity of the Arabic, it is no uncommon case for the popular name of a perishing or extinct species, to be transferred to a smaller animal somewhat resembling it. Thus, the Germans have transferred to the bison the name of the extinct Aurochs; and in our own country, the extirpated crane has transferred its name popularly to the heron, the bustard to the stone-curlew, and the great auk to the northern diver. The timid oryx, which as we know from Egyptian sculptures was frequently tamed by them, can never be the fierce, untameable unicorn of Job.

Neither can the claim of our buffalo be admitted, for the tame buffalo (*Bos bubalis*) was historically introduced from India, and there are no traces of any wild species in Western Asia.

But we have strong evidence of the former existence in Palestine of two great species of wild bovine animals, the Aurochs (*Bos primigenius*), now extinct all over the world; and the bison (*Bison bonasus*, or *Bos urus*), which even now lingers in scanty numbers rigidly preserved in one of the forests of Lithuania, and in some recesses

of the Caucasus. One great distinction between those two enormous beasts is the size of the horns, which are of prodigious length and extent in the true Aurochs; short and stout in the bison, which is now commonly called the Aurochs. The Aurochs, *i.e.*, the yore-ox, or ox of yore, was corrupted into *urus* by the Romans, who first saw it when Cæsar penetrated into the Hercynian forest. His description is as follows:—"These *uri* are scarcely less than elephants in size, but in their nature,

BISON. (*Bison bonasus.*)

colour, and form, are bulls. Great is their strength, and great their speed: they spare neither man nor beast when once they have caught sight of them. The hunters are most careful to kill those which they take in pitfalls, while the young men exercise themselves in this sort of hunting, and grow hardened by the toil. Those who kill most receive great praise when they exhibit in public the horns as trophies of their success. These *uri*, however, even when young, cannot be habituated to man or

made tractable. The size and shape of their horns are very different from those of our oxen."—*Cæsar, Bell. Gall.* iv. 29.

But not only have we thus evidence of the existence of the mighty Aurochs in Germany down to the Christian era; the monuments of Assyria represent a wild ox or bison among the wild animals chased by the compeers of Semiramis and Sennacherib. "The wild bull, from its frequent representation in the bas-relief," says Mr. Layard, "appears to have been considered scarcely less formidable and noble game than the lion. The king is seen contending with it, and warriors pursue it on horseback and on foot. In the embroideries on the garments of the principal figures it is introduced in hunting scenes, and in groups which appear to have a mythic or symbolical meaning. I was at one time inclined to believe that the bull of the sculptures might represent the unicorn or *raim*, so often alluded to in the Scriptures as an animal renowned for its strength and ferocity, and typical of power and might." After stating that he understands the *reêm* is generally taken for an antelope, the author proceeds:—"The bull of the bas-reliefs of Nimroud is evidently a wild animal, which inhabited Mesopotamia or Assyria. Its form is too faithfully delineated to permit of the supposition that it is an antelope. It is distinguished from the domestic ox by a number of small marks covering the body, and probably intended to denote long and shaggy hair. . . . The mention in the Bible of the wild ox, confirms the conjecture that it was at some ancient period an inhabitant of Assyria or of the adjacent countries, although it has long since become extinct. Had it been found in the Plains of Mesopotamia, in the time of Xenophon, he would probably have described it when speaking of the wild animals of that province. As it is only seen in the oldest monuments of Nimroud, and not in those of Khorsabad or Kouyunjik, it is possible that when the country became more thickly peopled in the latter period of the Assyrian Empire, it became extinct." —*Layard's Nineveh*, ii. 429–30.

Mr. Layard was undoubtedly right in the conclusion which he scarcely ventures to express against the criticism of writers who knew nothing of the physical geography of the country. The urus and the bison were

spread anciently from the extreme west of Europe to China, and existed in Thrace and Asia Minor, while the bison is still found in the Caucasus, the wild yak in Mongolia, and perhaps in Siberia and the forests of Persia. In the old pile dwellings of the lakes of Switzerland the bones of the urus are found, and also relics which show that at a period perhaps not long before the Roman conquest it was reclaimed by the inhabitants. Sir C. Lyell observes that in a tame state its bones were somewhat less massive and heavy, and its horns were somewhat smaller, than in wild individuals.

Still more direct evidence of the former existence of the Aurochs in Palestine was afforded by our discovery of a mass of bone breccia in the Lebanon, the flooring of an ancient cave. This breccia was composed entirely of teeth, bones, and sharp flints, conglomerated into a hard mass by the percolation of lime water, and it had been cut through by Rameses, king of Egypt, when he constructed his military road across the mountain. The bones are all in fragments; the remains, in all probability, of the feasts of the makers of the rude flint implements. Four of the teeth we collected have belonged to an ox, which cannot be discriminated from the Aurochs, or ox of our peat mosses (*Bos primigenius*); and one of them probably to a bison. Of the others, some may be assigned to the red-deer or rein-deer, and another to an elk. These discoveries bring down the range of these now northern animals further south than they have hitherto been traced; and there is no necessity to put back to any date of immeasurable antiquity the deposition of these remains in a limestone cavern. [See *Land of Israel*, pp. 9–13.]

The great-horned *Aurochs* probably became extinct only in the middle ages, and the bison, within comparatively modern times, was found in Pomerania and other parts of Germany. The only descendants of the former, if any, are in our breeds of long-horned cattle, and in the half wild race preserved in one or two parks, but they have sadly dwindled in size from their terrible ancestors. The wild cattle of Chillingham are probably from *Bos longifrons*.

After a careful examination of the subject, there cannot now remain a doubt on the identity of the *rêêm*, or unicorn, with the historic *urus*, or Aurochs, now, indeed, the 'ox of yore.'

Weasel. Heb. *choled.*—The word only occurs in the list of "unclean creeping things, that creep upon the earth" (Lev. xi. 29). Many commentators have conjectured that we ought to translate it 'mole,' from the Arabic '*khuld*,' or, as in Syria it is corrupted, '*khlunt*,' which means the blind rat, or burrowing mole (*Spalax typhlus*), so common in Palestine. But all the old versions and the Talmud read 'weasel,' and the same or a similar word may often be used in two cognate languages to denote two different, yet in some respects similar, animals. [On the Syrian Mole or *Spalax*, see Mole.]

There is no necessity to reject our version, especially if, as there is reason to think, *Chephor-peroth* signifies the spalax, the only mole found in Palestine, which does not possess any true mole or *Talpa*. The weasel tribe is well represented there, as in almost every other part of the world. The two species we noticed were the common weasel (*Mustela vulgaris*), and the polecat (*Mustela putorius*). It is very possible the Hebrew word also comprehends the short-legged ichneumon (*Herpestes ichneumon*), which is extremely common in every part of the country, so that it is scarcely possible ever to take a walk soon after sunrise without meeting this little animal trotting away to its hole; and which in some points resembles the weasel. The genets, of which there are several species, I believe also to exist in Palestine, though I did not secure any specimens; and there are also one or two other members of the weasel tribe, which, from the descriptions of the natives, I expect will be obtained there.

Whale.—This is in a few passages in our version the translation of *tannîn, i.e.*, 'sea-monster,' and in the New Testament of κῆτος. [See Leviathan, Dragon, Fish.] But *tannîn* is more usually given 'dragon,' and does not always necessarily imply a *sea*-monster; perhaps including great serpents and the crocodile. In the following places terrestrial animals are intended: Ex. vii. 9, x. 12; Deut. xxxii. 33; Ps. xci. 13, Jer. li. 34. [See Dragon and Serpent.] In the following the crocodile is spoken of: Job vii. 12; Ps. lxxiv. 18; Isa. xxvii. 1, li. 9; Ez. xxix. 3, xxxii. 2. [See Leviathan.]

The whale tribe is included, but not exclusively or specifically denoted, by the word *tanninim*, in the history of creation: "God created great whales, and every

living creature that moveth, which the waters brought forth abundantly, after their kind" (Gen. i. 21). But there is one passage which marks out the cetaceans very clearly: "Even the sea-monsters [*tanninim*] draw out the breast, they give suck to their young ones" (Lam. iv. 3). The prophet here exhibits a knowledge of the habits of the whale tribe, which proves his familiarity with some species, at least, of these marine mammals. It is well known that the whales, grampuses, porpoises, and dolphins, are not fishes, but air-breathing mammals, adapted to an aquatic life, which bring forth their young alive and suckle them.

Several species of *cetacea* are found in the Mediterranean and the Red Sea. Two species of dolphin, *Delphinus delphis* and *D. tursio*, the common and the bottle-nosed dolphins, are found in the Mediterranean. The dugong, *Halicore cetacea*, in the Red Sea. The grampus has not been noticed, but a porpoise, *Phocæna* sp. (?), is abundant in the Mediterranean. From various passages in the classic authors we have good reason to believe that some of the larger whales, the number of which has rapidly diminished in our northern seas within the memory of man, were found in the Mediterranean, and would be enumerated among the sea-monsters of Scripture.

In the reference to the history of Jonah by our Lord, we read: "For as Jonas was three days and nights in the wnale's belly," where the Greek word is κῆτος, not necessarily a whale, but any sea-monster, whether of the whale or shark tribe. And in the Book of Jonah no particular creature is specified, but only that "the Lord had prepared a great fish to swallow up Jonah" (Jon. i. 17). The fish could not have been a whale, as we restrict the name to the mammiferous *cetacea*, for none of them have a throat sufficiently capacious to receive a man; but must have been either some great shark, or a fish specially provided for the purpose. [See FISH.]

WOLF. Heb. *zeeb*; Arab. *deeb* (*Canis lupus*).—The wolf is frequently mentioned in Scripture, almost always as an emblem of ferocity and bloodthirstiness; especially its onslaughts on the sheep, and its prowling in the evening, are noticed. In Jacob's prophecy respecting his descendants it is said: "Benjamin shall ravin as a wolf: in the morning he shall devour the prey, and at

night he shall divide the spoil" (Gen. xlix. 27)—foretelling the fierce and warlike character of this tribe often displayed in their after history, as in the war between Benjamin and the rest of Israel, related in Judges xix.–xxi., and in the history of Saul, the first king of Israel. Isaiah, in describing the subjection of savage nature, and the restraint upon evil passions under the Messiah's kingdom, says: "The wolf also shall dwell with the lamb" (xi. 6). "The wolf and the lamb shall feed together" (lxv. 25).

The habit of the wolf in seeking its prey after sunset is frequently alluded to: "A wolf of the evenings shall spoil them" (Jer. v. 6). "Their horses . . . . are more fierce than the evening wolves" (Hab. i. 8). "Her judges are evening wolves" (Zeph. iii. 3). In several other passages the treacherous and cruel opponents and persecutors of the truth are compared to wolves: "Her princes in the midst thereof are like wolves ravening the prey, to shed blood, and to destroy souls, to get dishonest gain" (Ez. xxii. 27). "Beware of false prophets, which come to you in sheep's clothing, but inwardly they are ravening wolves" (Matt. vii. 15). In our Lord's commission to the twelve apostles, he says: "Behold, I send you forth as sheep in the midst of wolves: be ye therefore wise as serpents and harmless as doves" (x. 16). In his charge to the seventy, the same figure occurs: "Behold, I send you forth as lambs among wolves" (Luke x. 3). And in St. Paul's address to the churches at Miletus: "I know this, that after my departing shall grievous wolves enter in among you, not sparing the flock" (Acts xx. 29).

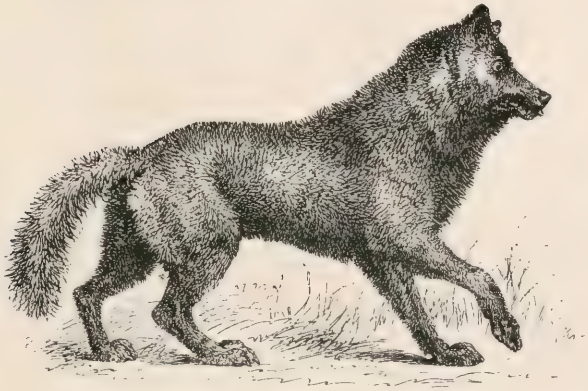
The wolf is now, as of old, the dread of the shepherds of Palestine. Not so numerous, but much more formidable than the jackal, he lurks about the folds, hunting not in noisy packs, but secreting himself till dark among the rocks; without arousing the vigilance of the sheep dogs, he leaps into the fold, and seizes his victim by stealth. When encamped in a glen in North-western Galilee, we were often startled by the discharge of firearms at intervals through the night, and, on inquiring the cause, were told by the shepherds that they fired in order to frighten any wolves that might be prowling near the fold undetected by the dogs. A single wolf is far more destructive than a whole pack of jackals, who always

betray their presence, and who can only carry off any silly straggler. I never heard of the Syrian wolf hunting in packs, as wolves do in winter in Russia and the mountainous districts of Europe, and was told by the shepherds that there are seldom more than two or three together. Probably the mildness of the climate, which never drives them from their mountains, and the facility with which they can obtain food, may account for this.

Their boldness is very remarkable. When camping at desolate Moladah, on the southern frontier of Simeon, I had one evening wandered alone three or four miles from the tents. In returning before sunset I suddenly noticed that I was followed at an easy distance by a large tawny wolf. The creature kept about 200 yards behind me, neither increasing nor diminishing his distance. I turned upon him, when he too turned. In vain I endeavoured to close with him, for he always exactly accommodated his pace to mine. We continued respectively to advance and retreat without coming to close quarters. The wolf's evident intention was to keep me in sight *until evening*, when he hoped to steal upon me in the darkness unperceived. He never uttered a sound of any kind, and walked as if quite unconscious of my presence. When it was nearly dark, I found him rapidly closing upon me, and, thinking him within shot, I halted, when he, too, stood looking at me. I drew my charge, slipped down a ball, and took deliberate aim without his moving. The bullet struck a rock between his legs, and then he turned and trotted very quietly away.

In every part of the country we occasionally saw the wolf. In the open Plain of Gennesaret my horse one day literally leapt over a wolf, which started from under the bank of a narrow ditch I was crossing, but allowed us to leap before he started, when he ran with all speed across the plain. He was, no doubt, secreted under the bank, which was certainly not more than three feet in depth, waiting, wolf-like, for an opportunity of seizing his victim out of a herd of cows and calves, which were grazing in charge of a Bedouin boy, not 100 yards farther on. In the hill country of Benjamin, about Bethel and Gibeah (Jib), the wolves still ravin. We found them alike in the forests of Bashan and Gilead, in the ravines of Galilee and Lebanon, and in the maritime plains.

The Syrian wolf is of a lighter colour than the wolf of Europe, being a pale fawn colour, and seems to be a larger and stronger animal, probably from its being better fed. The natives speak of a still fiercer black wolf, which they call *sheeb;* but this I never saw, and believe that it is only a darker coloured wolf of the ordinary species, and perhaps an old solitary male. It is no doubt the *Canis lycaon* of naturalists.



WOLF. (*Canis lupus.*)

The wolf (*Canis lupus*) extends over the whole northern hemisphere, excepting in a few countries where it has in modern times been extirpated.

CHAPTER VII.

Birds.—Part I.

In the summary of the history of the creation, in the first chapter of Genesis, birds are described as being brought into existence on the fifth day, after sea-monsters and fishes, from the waters, and before the beast of the earth (mammals), the creation of which immediately preceded man on the sixth day. "And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind. . . . And the evening and the morning were the fifth day" (Gen. i. 20, 21, 23).

This position of birds in the Mosaic record is remarkably in accordance with the geological chronology of their appearance. The earliest traces of birds yet discovered are in the Triassic period; and it is only in the Chalk period, just after the reign of the great sea-monsters and reptiles of the Wealden, that birds appear to any extent in the fossil remains. The earliest complete fossil of a bird yet obtained is that of the Archæopteryx, strangely different from any existent bird, with its caudal vertebræ produced into a tail like that of a lizard or a quadruped, as long as its body, and the tail feathers growing in a row on each side.

The birds are stated to have been created from the waters—not, like the beasts, from the earth. In the then condition of the world, the aquatic birds would probably be the first class to predominate, as they could find their food from the waters of the sea and from the marshes, before the dry land was in a condition to support the thousands of species which now find sustenance on its surface.

The earliest species of birds appear to have performed many of the functions now belonging to quadrupeds. Before the land beasts were introduced they were of

enormous size, and many of them without any powers of flight. Thus we find, that in islands where there were no quadrupeds, huge birds stalked on the plains or in the woods, surpassing most animals in size. Most of these are now extinct, like the monstrous *Æpyornis* of Madagascar, which we know only by its eggs, of a capacity fourteen times that of the Ostrich's egg. There was the Dodo, a colossal pigeon which could not fly, in the Mauritius; the Solitaire, and other gigantic birds, both waterhens and of other classes, in the neighbouring islands of Bourbon and Seychelles, soon extirpated when man began to inhabit them; the many extinct wingless birds of New Zealand, where there were no quadrupeds; the Dinornis and others, vastly exceeding the Ostrich in bulk and height; and the Emeus and other species in Australia. Thus the reign of birds may be placed between those of reptiles and mammals.

In their natural economy, too, birds have some marked affinities with the fishes and reptiles, which separate them from the milk-giving animals, especially in their being produced from eggs, instead of being brought forth alive. But they are the most distinct and best characterized class in the whole animal kingdom. There is a constancy in the nature of their covering, which does not admit of the variations found in mammals, reptiles, and fishes; for every bird, whether capable of flight or not, is clad with feathers. No species of bird brings forth its young alive, or produces them in any other way than from eggs, consisting invariably of yolk, white, and a calcareous shell, and incubated by artificial heat. No bird deviates in its skeleton from the typical form, as the whale does among mammals, and the serpent among reptiles. No bird deviates from the ordinary mode of generation of its class, as do the marsupials from other quadrupeds. The Hebrew writers, consequently, though unscientific in their divisions, always distinguish between birds and every other class. The sole exception, if it be an exception, is the mention of the bat *after* the birds in the list of unclean creatures in Leviticus, though, as it is followed by the expression, 'all fowls that creep, going upon all fours,' *i.e.*, winged insects, and perhaps reptiles, it can scarcely be said to be classed, even here, among birds.

Apart from the lists, in Leviticus and Deuteronomy, of birds that were not to be eaten, the biblical allusions to distinct species of birds are very scanty, and are chiefly confined to poetical illustrations in the Psalms, and especially in the Prophets. Birds among the Hebrews were a very unimportant item in domestic economy. They were rarely domesticated; indeed, before the return from Babylon, it does not appear that any domestic poultry were ordinarily reared. The semi-reclaimed Pigeon was the sole exception. Nor were wild birds in sufficient abundance to be of much value to an agricultural people as an article of food. Among the Egyptians, the swarms of waterfowl on the Nile and in the marshes rendered birds of much greater economic importance, as may be seen by the frequent reference to them on their monuments.

By the law of Moses, birds were divided into two classes, so far as food was concerned—the clean and the unclean (Lev. xi. 13–19; Deut. xiv. 11–20). The unclean included all birds of prey, and carrion and fish feeders. On other classes, as the passerine birds, game and poultry groups, the Duck tribe, and most of the Waders, excepting only the Herons and Storks, there was no restriction. In fact, the Mosaic law permitted the eating of all those birds which are considered edible now, and only forbade those which, however repugnant to our tastes, are yet eaten by many of the half-savage tribes of Syria and Arabia: as the mountaineers of the Lebanon will devour the flesh of the Eagle without scruple. The law of Moses in this respect did but sanction by legislative enactment that which the instinct of civilized man has in all ages approved.

There are various allusions in Scripture to the habits of birds, especially to the wonderful instinct of migration possessed by many species. Thus, in the description of spring, we read "Lo! the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land" (Cant. ii. 11, 12). And in remonstrating with backsliding Judah, the prophet appeals to them, "Yea, the stork in the heaven knoweth her appointed times; and the turtle and the crane and the swallow observe the time of their coming; but my people know not the judgment of the Lord" (Jer. viii. 7).

Singing birds are universally kept in the East, and especially by the women, who delight in taming cage birds. Indeed, there are few species of small birds which are not to be seen reared in captivity both by Jews and Moslems, as well as the turtle-doves, of which they are particularly fond. This taste appears to be alluded to in Job. "Wilt thou play with him as with a bird? or wilt thou bind him for thy maidens?" (ch. xli. 5).

To domestic poultry, as has been observed above, we find no reference in the Old Testament, excepting the not very decisive passage in Isa. lx. 8: "Who are these that fly as a cloud, and as the doves to their windows?" In later times poultry had become common, as we see by the illustration used by our Lord to set forth His tender love for Jerusalem: "How often would I have gathered thy children together, even as a hen gathereth her chickens under her wing" (Matt. xxiii. 37), and by His warning to St. Peter, that the cock would not crow twice till he had denied Him thrice.

Other habits of birds are alluded to incidentally, as their building their nests in the precincts of the temple, furnishing an image of the peace and security to be found in the house of God: "Yea, the sparrow hath found an house, and the swallow a nest for herself, where she may lay her young, even thine altars, O Lord of hosts, my King, and my God" (Ps. lxxxiv. 3).

There is a very strong feeling among all Eastern nations, that any birds which resort to a sacred edifice, thereby claim the protection of the deity. It was esteemed sacrilege to disturb such. The sentiment was not merely Jewish. The Greek historian, Herodotus, tells how, when the people of Cyme had been desired by the oracle to surrender a suppliant to the Persians, Aristodicus, a citizen, went round the temple, taking all the nests of the sparrows and small birds he could find. Whereupon a voice from the shrine exclaimed, "Most impious of men, what is this thou darest to do? Dost thou carry off my suppliants from my temple?" Aristodicus, at no loss for a reply, retorted, "O King, dost thou thus aid thy suppliants, but biddest us surrender *our* suppliant?"

We read, also, that a man was once condemned to death at Athens for molesting a sparrow in the temple of Æsculapius.

To the present day the Moslems cherish tenderly any birds which resort to the mosques, and woe betide the reckless stranger who should meddle with them! The storks seem perfectly aware of the immunity, as do the doves and other birds, which nest in numbers in such situations.

There is a merciful command in the law of Moses, forbidding any one when finding a nest to take the old bird as well as the young, teaching that it is abhorrent to all humane feelings to take advantage of that maternal instinct of attachment which makes the dam an easy prey (Deut. xxii. 6).

The habit of many species of birds, to forsake their nests for a slight cause, is also alluded to. "As a bird that wandereth from her nest, so is a man that wandereth from his place" (Prov. xxvii. 8). Their rapid flight is employed to illustrate the passing nature of all earthly things. "As for Ephraim, their glory shall fly away like a bird" (Hos. ix. 11).

The Lord appeals to Israel, reminding them of the Providence that had safely brought them up out of Egypt: "Ye have seen . . . . how I bare you on eagles' wings, and brought you unto myself" (Ex. xix. 4), where we are reminded of the favourite symbol of the Griffon's pinions on Egyptian monuments; and of the winged bulls and heroes of Assyrian sculpture, emblems of power and speed in the protecting divinities or kings. The same metaphor is more fully drawn out in another place. "As an eagle stirreth up her nest, fluttereth over her young, spreadeth abroad her wings, taketh them, beareth them on her wings: So the Lord alone did lead him" (Deut. xxxii. 11, 12). Above all, when our Lord himself would teach us to dismiss all anxious care, and to cast our cares upon Him who careth for us, He bids us "Behold the fowls of the air: for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them. Are ye not much better than they?" (Matt. vi. 26).

The allusions to the singing of birds are very few and slight in Scripture. "The time of the singing of birds is come" (Cant. ii. 12), is one of the indications noted of the glad return of spring. And, in the poetical description of the failing powers of old age, in Ecclesiastes (xii. 4), it is said, "He shall rise up at the voice of the

bird," *i.e.*, shall sleep so lightly that the slightest sound shall disturb him, and in the early morning, when the birds welcome the sunrise, he shall leave his bed. Another reference to the singing of birds is in Ps. civ. 10, 12: "He sendeth the springs into the valleys. . . . By them shall the fowls of the heaven have their habitation, which sing among the branches." In this passage, as the Psalmist is speaking of the trees which overhang the watercourses, or wadys and rivers of the country, the singing of the different species of warblers (*Turdidæ*) is perhaps pointed to, and especially the Bulbul and Nightingale, both of which throng the trees that fringe the Jordan, and abound in all the wooded valleys, filling the air in early spring with the rich cadence of their notes.

That birds of various kinds were captured and used for food, we have several incidental hints in Scripture, as well as allusions to the different modes of fowling. These ancient methods are still pursued, as gunpowder is too precious a commodity to be employed excepting for the larger game. Small birds are still an ordinary article of consumption in the East, as they were when our Lord put the question, "Are not five sparrows sold for two farthings?" (Luke xii. 6), "Are not two sparrows sold for a farthing?" (Matt. x. 29). At the present day we may see in the markets long strings of sparrows and other birds exposed for sale by the fowlers, and in the Syrian cook-shops they are often sold ready plucked and trussed in rows on little wooden skewers, roasted and eaten like kabobs.

These birds are generally captured by snares or clap-nets, mentioned several times. "Our soul is escaped as a bird out of the snare of the fowlers: the snare is broken, and we are escaped" (Ps. cxxiv. 7). "The proud have hid a snare for me and cords; they have spread a net by the wayside; they have set gins for me" (Ps. cxl. 5), where three several methods of taking birds are enumerated. Job enumerates four different modes of fowling together: "He is cast into a *net* by his own feet, and he walketh upon a *snare*. The *gin* shall take him by the heel . . . . a *trap* is laid for him in the way" (ch. xviii. 8–10). "As a bird hasteth to the snare, and knoweth not that it is for his life" (Prov. vii. 23). "Man knoweth not his time: as the fishes

that are taken in an evil net, and as the birds that are caught in the snare" (Eccl. ix. 12). "My net also will I spread upon him, and he shall be taken in my snare" (Ez. xii. 13); "Can a bird fall in a snare upon the earth, where no gin is for him? shall one take up a snare from the earth, and have taken nothing at all?" (Amos iii. 5). There are many similar passages, and no less than seven Hebrew words are used to express different kinds of nets, traps, and snares. Though many of these might be rather for animals than birds, yet they are all used sometimes with reference to the latter.

No doubt, since the introduction of firearms, ingenuity in traps for the larger creatures has been less cultivated, but the various gins and snares still in use have been handed down from the earliest times. Of these, the most primitive is that of the throw-stick, used only in the open ground, on the plains and deserts, for such birds as the bustards and partridges, which do not at first take flight, but endeavour to save themselves by running. It is the kind of chase probably alluded to in 1 Sam. xxvi. 20, where David complains of Saul, "The king of Israel is come out . . . as when one doth hunt a partridge in the mountains." The weapon is a stick about eighteen inches long and half an inch in diameter, which is hurled with a revolving motion so as to strike the legs of the bird as it runs, or, more frequently, at a little higher elevation, so that when the game, alarmed at the approach of the missile, begins to take wing, it is struck and slightly disabled. The pursuers let fly a rapid succession of sticks, and generally finish the chase by flinging their cloak over the quarry, which is always despatched by cutting the throat, after the Mahommedan injunction, which, following the Jewish law, forbids the eating of any flesh with the blood in it. Even should the bird be killed at first, the operation of cutting the throat is always performed, or it would be unclean. See Lev. xvii. 13: "Whatsoever man there be of the children of Israel, or of the strangers that sojourn among you, which hunteth and catcheth any beast or fowl that may be eaten; he shall even pour out the blood thereof, and cover it with dust."

A yet more primitive mode of taking birds is practised by the villagers at the season of migration, when the quails arrive in immense flocks, and settle, especially on

the sea coast, perfectly exhausted with their flight. The birds on such occasions roost huddled together, and are surrounded by twenty or thirty men, who form a wide circle holding their cloaks spread out before them, and gradually advance without alarming their quarry, endeavouring to select some piece of brushwood in the centre, to which the birds run on seeing them approach, not sufficiently alarmed to endeavour to take to flight. At a given signal the hunters suddenly rush in, and, throwing their cloaks over the flock, often succeed in capturing great numbers. From Ez. xii. 13, it would seem that the net was formerly thrown over birds in this manner.

Traps of various constructions are commonly employed, many of them exactly like those used by boys in England, especially that by which the bird lights on a perch, which it displaces, and dislodges a brick or stone, by which it is imprisoned. Spring traps are unknown.

Still more common is the use of the 'gin,' or noose, so frequently mentioned in Scripture. For the larger birds it is made of wire, for the smaller of horse-hair, exactly like the springes used in our own country. The nooses are either placed in the runs of the birds, or, for larks and other song birds, are concealed among leaves or grass, and corn thrown down as a bait to attract them. Vast numbers of pigeons and turtle-doves are taken in this way. The bag-net is also used at night, hung loosely between two long poles, when the birds, alarmed by a lantern held in front of their roosting-places, at once fall into it.

A much more artificial method of fowling seems to be alluded to in Jer. v. 26, 27 ("They set a trap, they catch men. As a cage is full of birds, so are their houses full of deceit"), and is more distinctly explained in Ecclus. xi. 30: "Like as a partridge taken and kept in a cage, so is the heart of the proud; and like as a spy watcheth he for thy fall." The employment of decoy birds is very common, and much pains are taken to train the decoys for their treacherous office. They are carefully tended till perfectly tame, that they may not be deterred by the neighbourhood of man from uttering their call-note. Larks, linnets, pigeons, quails, and especially partridges, are employed in this mode of fowling The bird is placed in a cage, partly concealed,

while the fowler remains carefully under cover in the neighbourhood, where he can manage his snares and nets. In the case of larks, the cage is placed on the open ground, surrounded with springes or horse-hair nooses, which entangle the feet of the incautious and too curious visitors. For other small birds it is placed in a thicket, while the sportsman is ready with his net to throw over them when they alight. Sometimes great numbers are taken in a few hours, as the birds will descend in large flocks. Partridges and quails are more generally captured by long, narrow runs, carefully formed of brushwood, leading to the cage in which the decoy bird is concealed. The run, like the decoy used for wildfowl in this country, gradually contracts, till it ends in a bag-net thrown over the pathway, in which whole coveys are rapidly captured wholesale. The mountaineers of Lebanon are very skilful in this mode of fowling, and I have seen them often capture whole broods before they could fly, when the chicks are brought up by hand, either for food, or to serve as decoys in turn themselves.

For the Wood-pigeon a more cruel device is employed. A wild bird is snared, and its eyelids sewn together; it is then tied to a perch, which is set among the trees. The poor captive keeps flapping its wings and uttering its call-note. The birds of its kind soon assemble in flocks, attracted by curiosity, and fall an easy prey to the fowlers, who are concealed under brushwood close by. We found that large numbers of wood-pigeons were taken in this way by the Arabs of Mount Gilead.

Although dogs were employed in the chase by the Egyptians and Assyrians, there is no indication of their having been so used by the Jews. The dog being an unclean animal, the Israelites would probably have the same dread of eating any animal in the capture of which the dog had assisted as the Moslems have at the present day; for though the dog may be employed in the chase, yet, if he tear the quarry, the latter is polluted. "Ye shall be holy men unto me: neither shall ye eat any flesh that is torn of beasts in the field; ye shall cast it to the dogs" (Ex. xxii. 31). See also Lev. xxii. 8, &c. For the pursuit of wild beasts dogs were employed; but the special sagacity of the pointer and setter is quite unknown in the East.

Nor have we any intimation that hawking, the favourite and most aristocratic chase among Orientals, was practised by the Jews. It was certainly cultivated by the Greeks, as we learn from classical authors; and there is every reason for believing that the art, which to the present day is cultivated with the greatest care by the Syrian Arabs, and as far as India, China, and Western Africa, has been handed down from a very remote antiquity. But the rugged hills and cultivated valleys of the Holy Land would afford no scope for its exercise; and this is probably the reason why we find no allusion to falconry in the Old Testament.

Before entering on a particular examination of the birds mentioned in Scripture, it may be well to take a general view of the ornithology of Palestine. The number of species collected by myself amounts to 322, and there are at least thirty other species which may be added to this list. Of these the greater part are either the same as those of our own country, or very similar in character and appearance. There are, however, many birds of brilliant plumage which are either extinct in Britain, or very rare stragglers to our shores, while there are others which do not extend so far north. The Roller, Bee-eater, Hoopoe, Smyrna Kingfisher, Belted Kingfisher, Sunbird, Great Shrike, and Bulbul, may be mentioned among these.

But what arrests the attention of the traveller even more than these brightly-clothed birds, is the immense number and variety of the larger birds of prey—the vultures, eagles, and falcons, which abound in every part of the Holy Land, and are at first sight its ornithological characteristic. Many of these—eagles, kites, peregines, buzzards—were once familiar denizens of the wilder parts of England, but have disappeared before the increase of human population. Others, as the griffons and vultures, are the useful scavengers of warm climates, scarcely ever seen in more northern latitudes.

The Holy Land, limited in area, a slip of coast territory 200 miles in its extreme length, and not above 90 in width, could scarcely be expected to vary much in character from the other countries bordering on the Mediterranean. Along the whole coast, on the rich maritime plains, and on the western slopes of the highlands which rise behind these plains, everything par-

takes of the character of the animals and plants of Southern Europe, with a slight admixture of Egyptian immigrants. The gulls and petrels which skim the shores are the same as those which dash down the Bosphorus, or dip in the harbour of Alexandria; the same birds of prey descend from the hills as sweep the inlets of Smyrna, or earn a scanty subsistence among the hungry isles of Greece. The Russian winters dismiss from inhospitable steppes almost the same species by divergent routes to the west and the east of the Mediterranean, while returning spring tempts but few warblers from the scorching south, whom a spirit of adventure does not induce to ramble still farther towards the north.

But as soon as we have crossed the Mediterranean watershed, we encounter birds of a widely different type, with no relationship to those of Europe. To understand the cause of this, we must recollect, that the two great mountain ranges of Central Syria, the Lebanon and the Anti-Lebanon (or Hermon), do not terminate, as a cursory inspection of our maps might lead us to suppose, at the northern frontiers of the Holy Land. They project themselves far southwards, though at a less elevation, running in two parallel ranges, separated from each other by the deep chasm of the Jordan valley, until the western range, after forming by its broken and irregular spur the hill country of Galilee, then gathers more compactly into the mountains of Ephraim and Benjamin, is spread out into the hill country of Judæa, and, finally, is lost and expanded into that high table-land of Western Arabia Petræa, which forms the watershed of the Wady el Arish (sometimes marked in our maps as the river of Egypt), and is abruptly brought to a point at the bifurcation of the Red Sea.

Broken more or less throughout its whole course, this continuation of the Lebanon is the inheritance of the ten tribes and a half, the platform on which the great historical cities of Palestine rest, and divides the watersheds of the Mediterranean and of the Dead Sea valley. The eastern range of Syria, after culminating in snow-clad Hermon, at a height of nearly 10,000 feet, runs southward with much less irregularity until it terminates at the head of the Gulf of Akabah, the ancient Ezion-geber. In its course it is known as the table-land of

Bashan, the mountains of Gilead and Ajalon, the hills of Moab, and Edom or Idumæa, the modern Petra. This range, like the western, forms the separation of a watershed through its whole length, the westward face draining into the Jordan, the Dead Sea, and the Arabah, while the eastern watershed fertilizes the vast plains of Bashan, Moab, Midian, and the Ammonites (the modern Belka and the Hauran), its streams being finally lost in sand, salt lakes, or marshes, in the Arabian desert. None of its drainage reaches the Red Sea, or the Euphrates.

Now, this desert expanse, like the Sahara of North Africa, forms a barrier against the distribution of eastern and southern birds and animals, more impassable than an area of sea, of even equal extent. As it is the Sahara, and not the Mediterranean which separates the natural history of Europe from that of Africa, so it seems to be the Arabian deserts, and not the Persian or Red Sea gulfs, which check the spread of the Indian and Abyssinian fauna. Were it not for one unique and unparalleled phenomenon in its physical geography, we should find the ornithology of the Holy Land similar to that of Barbary or Spain, but with some few stragglers from Eastern Africa, whose arrival had been facilitated by the lay of the Red Sea, and with a still more scanty number of stragglers across the eastern desert from the Euphrates valley.

But the existence of the Jordan valley disturbs these proportions. The little district of Palestine is rent by this long chasm, 1400 feet below the level of the sea, enclosing tracts, some arid and salt, others fertile and well watered, but all enjoying, in the temperate zone, the climate of the tropics, and wholly distinct from the country on either side. These tracts, or oases, nurture birds of tropical type, different from those of the upper country. But there appears to be no difference between the birds on either side of this isolated strip of the tropics. The same birds, the wood-pigeons, jays, and woodpeckers of Carmel, equally abound in the forests of Gilead and Bashan, and we obtained no birds there which did not also occur on the western side.

Of the 322 species of birds we obtained, 26 are, so far as our present knowledge extends, peculiar to Palestine and the districts immediately adjacent; 8 are of Eastern

Asia; 32 are common to Arabia or East Africa, being chiefly desert forms; while 260 are reckoned in the lists of European birds, and no less than 172 are enumerated in the catalogues of British birds.

BIRDS OF PREY.—We will consider first the birds of prey, which naturally claim precedence. Of these, forty-three species rewarded our researches during one year, and they certainly form the prominent feature in the ornithological landscape. Over the deep valley of the Jordan kestrels hover and kites and short-toed eagles soar throughout the year; harriers and buzzards perpetually sweep across the marshes and maritime plains; the traveller can never mount a hill without being watched by parties of griffons and eagles circling far above him. The griffons are far more numerous than in any other country I have visited, while the larger species of eagles are certainly not less abundant than in the best stocked wildernesses of Algeria and Tunis.

Unobservant as Orientals proverbially are of the nicer distinctions of the animals and birds around them, yet the native vocabulary for the raptorial birds is much richer than for any other class. The Arabs distinguish three species of vultures. They have five names for the falcons, three for the eagles, two for the kites. They recognise both species of kestrel, and the sparrow hawk, and have a distinct appellation for the harriers, while they distinguish the Egyptian eagle-owl, the white, little, and scops owls.

Incidentally as natural history is mentioned in Holy Scripture, yet even there we have fifteen distinct Hebrew names for the birds of prey, several of which are at once recognisable in the vernacular Arabic of the country.

We shall give these, and their rendering in the authorized version, and then consider each term separately. They are, (1) *'ayit*, 'fowls;' (2) *peres*, 'ossifrage; (3) *nesher*, 'eagle;' (4) *racham*, 'gier-eagle;' (5) *dayah*, 'vulture;' (6) *'asniyah*, 'osprey;' (7) *raah*, 'glede;' (8) *ayah*, 'kite;' (9) *netz*, 'hawk; (10) *tachmâs*, 'night-hawk;' (11) *bath-haya'anah*, 'owl;' (12) *yanshooph*, 'owl;' (13) *cós*, 'great owl;' (14) *kippóz*, 'little owl;' (15) *lilith*, 'screech owl.'

(1) *'Ayit*, 'FOWLS,' from a root signifying 'to attack

vehemently,' is a collective term, applied exclusively to raptorial birds. It occurs three times: "When the fowls (*'ayit*) came down upon the carcases, Abram drove them away" (Gen. xv. 11). "There is a path which no fowl (*'ayit*) knoweth, and which the vulture's eye hath not seen" (Job xxviii. 7). "The fowls shall summer upon them, and all the beasts of the earth shall winter upon them" (Isa. xviii. 6).

In each of these passages we have a familiar characteristic of all birds of prey referred to. In the passage from Isaiah, the prophet foretells that the Ethiopian enemies of his people shall be left desolate for the fowls to summer on, in allusion to the well-known predilection of all these birds for a bare and dead tree on which to perch. No eagle or large hawk will settle on a green tree, if a dead stump or bare pole is in the neighbourhood; and the fowlers, when wishing to obtain hawks, take advantage of this habit by fixing their traps on the top of a dead tree, or by erecting a tall pole with a trap on the top of it, when it is certain to be selected by the first falcon in want of a perch.

In the two passages first quoted, reference is made to two very remarkable characteristics of the vultures and larger eagles, their habit of congregating in large numbers over a carcase, and their wonderful power of distant vision. These birds detect their food by sight, not by scent. If an animal falls at night, it is not attacked till daylight, unless by the jackals and hyænas; but if it be slaughtered after sunrise, though the human eye may scan the firmament for a vulture in vain, within five minutes a speck will appear overhead, and, wheeling and circling in a rapid downward flight, a huge griffon will pounce on the carcase. In a few minutes a second and a third will dart down; another and another follows—griffons, Egyptian vultures, eagles, kites, buzzards, and ravens, till the air is darkened by the crowd. "Wheresoever the carcase is, there will the eagles be gathered together."

"There is a path which no fowl knoweth, and which the vulture's eye hath not seen;" and yet the vulture can detect the path of a wounded deer from a height where it can itself be descried by no human eye. The process is probably this: The griffon-vulture, who first detects the quarry, descends from his elevation at once. Another, sweeping the horizon at a still greater

distance, observes his neighbour's movements, and follows his course. A third, still farther removed, follows the flight of the second; he is traced by another, and thus a perpetual succession is kept up, so long as a morsel of flesh remains over which to consort. Thus, on great battle fields, and during sieges, as at that of Sebastopol, immense numbers of vultures were congregated in a few hours, where the bird was comparatively scarce before. During the Crimean war, the whole race from the Caucasus and Asia Minor seemed to have collected to enjoy so unwonted an abundance. The Arabs of North Africa declare, that at that time very few 'Nissr' were seen in their accustomed haunts, and believe that they were all gathered, even from the Atlas, to feed on Russian horses.

LÄMMER-GEIER. (*Gypaëtus barbatus.*)

(2.) *Peres*, 'OSSIFRAGE' (Lev. xi. 13; Deut. xiv. 12).—The bird here denoted is the Lämmer-Geier, or Bearded

Vulture, the largest and most magnificent of the Vulture tribe (*Gypaëtus barbatus*), and the Hebrew word, meaning 'the breaker,' is well expressed by the Latin 'Ossifrage,' or 'bone-breaker.' Marrow bones and tortoises are its favourite delicacies; but huge as is its size (four and a half feet in length), its claws and bill are comparatively weak, and it is only by carrying its prize to a great height, and then dropping it repeatedly, that it is able to reach the dainty morsel within. It is not a common bird in the Holy Land, and is not gregarious; but most of the ravines are peopled by a pair, and one or two may be observed in every day's journey. The Lämmer-Geier may be seen floating slowly at a uniform level, close to the cliffs of some deep gorge, like the Jabbok, where his shadow is cast on the wall-like rocks. If the ravine has sharp angles, he does not cut across from point to point, but preserves the same distance from the cliffs.

When the other vultures have picked the flesh off any animal, he comes in at the end of the feast, and swallows the bones, or breaks them and swallows the pieces, if he cannot otherwise extract the marrow. The bones he cracks by letting them fall on a rock from a great height. He does not, however, confine himself to these delicacies, but, whenever he has an opportunity, will devour lambs, kids, or hares. These he generally obtains by pushing them over cliffs when he has watched his opportunity, and he has been known to attack men while climbing rocks, and dash them against the bottom. But tortoises and serpents are its ordinary food.

I have repeatedly watched a pair of Lämmer-Geiers, who had an eyrie close to our camp, pass and repass in front of our tents for hours at a time, invariably dropping something upon a smooth ledge of rock hard by. For several days we imagined that these were sticks they were carrying to their nest; for prompt as we were in endeavouring to be first at the spot, the birds swooped down like lightning and seized their quarry again. At length we caught a serpent, writhing and dislocated, which we had taken for a stick, and found that our imagined stones were tortoises, which had to be dropped perhaps a dozen times before the shell was sufficiently shattered. No doubt it was a Lämmer-Geier that mistook the bald head of the poet Æschylus for a stone, and dropped on it the tortoise which killed him.

The adult Lämmer-Geier is a beautiful bird, with its black beard, tawny under plumage, blood-red eyes, and finely pencilled upper plumage. Its flight is very graceful, especially when, in turning a corner, it slightly bends its long wedge-shaped tail, gently draws in one wing, and as gently expands it again. The young bird is sooty black, and by no means prepossessing in appearance. It does not attain its mature plumage for two years. The Lämmer-Geier is found in all the mountainous districts of Southern Europe, Africa, and Asia, south of the Altai Range, to which it does not extend,* and breeds in the most inaccessible cliffs, laying only one egg in the middle of winter, of an orange or pink colour, which is hatched generally in February. The young leave the nest in April or May. The nest is an enormous structure, a cartload of branches interwoven, supporting a solid bed of sods and moss.

(3.) *Nesher*, 'EAGLE.'—Invariably so translated in the many passages in which the word occurs. There can be no doubt of the identity of the Hebrew '*nesher*' with the Arabic '*nissr*,' the name invariably applied not to any eagle, strictly so called, but to the Griffon (*Gyps fulvus*) of naturalists, commonly known as the Griffon-vulture, or Great Vulture. It is unfortunate that in our language we have but one word, 'vulture,' applied alike to the noble Griffon, and to the very useful, but very despicable scavenger, 'Pharaoh's Hen,' as Europeans in the East call the Egyptian Vulture. Though the Griffon be a carrion feeder, it is neither more nor less so than all eagles, none of which will kill their prey, if they can find it ready slain to their hand.

We shall see, as we examine some of the passages where the *nesher* is spoken of, that the description is applicable to the Griffon alone; and so far from the Griffon-vulture conveying the idea of a repulsive bird to the Oriental mind, it has been universally adopted as the type of the lordly and noble. Nisroch, or the eagle-headed god of the Assyrian sculptures, and of 2 Kings xix. 37, Isa. xxxvii. 38, was the deification of the *Nissr* or Eagle; the standard of the Assyrian armies, alluded to in Hab. i. 8, "They shall fly as

* The late Mr. Atkinson assured me that it did not extend so far north as the Altai Range, *properly so called but* only to the next range southwards.

the eagle (*nesher*) that hasteth to eat." "*Nesher*" may have been used of the larger eagles and vultures indifferently.

In Micah (ch. i. 16) we read, "Make thee bald, and poll thee for thy delicate children; enlarge thy baldness as the eagle" (*nesher*), where the similitude can

GRIFFON-VULTURE. (*Gyps fulvus.*)

only be taken from the Griffon-vulture, which has the neck and head bald and covered with down, a character which no eagle shares with it. To explain the passage of the Eagle at the time of moulting, as some commentators have done, is to destroy the force of the allusion, which is to the custom of shaving the head as a token of mourning. The Hebrew word sig-

nifies 'to make bald the back part of the head,' very applicable to the back of the head and neck of the Griffon, destitute of true feathers.

The word *nesher* is derived from a root signifying 'to tear with the beak,' most appropriate to the furious vehemence with which this bird rips up the carcase on which it pounces.

Constant reference is made in Scripture to its feeding on the slain, and on dead flesh. Although this is a habit it shares with the Eagle, yet no eagles congregate like the Griffon; and while the latter may be seen by hundreds, the less conspicuous eagles are only to be counted by a few individuals here and there. "Her young ones also suck up blood: and where the slain are, there is she" (Job xxxix. 30). "The eye that mocketh at his father, and despiseth to obey his mother, the ravens of the valley shall pick it out, and the young eagles shall eat it" (Prov. xxx. 17). "Wheresoever the carcase is, there will the eagles be gathered together" (Matt. xxiv. 28), where the term may be taken generically.

In Isa. xlvi. 11, Cyrus is compared to this bird, which was the emblem and standard of Persia. "Calling a ravenous bird from the East." And from Assyria and Persia the Romans probably borrowed the ensign which has been adopted by so many modern nations, with more appropriateness of character than its bearers would be willing to acknowledge.

The longevity, strength, swiftness, powers of sight inaccessible nesting places, and affection for its young, are all alluded to in Scripture. "Thy youth is renewed like the eagle's" (Ps. ciii. 5),* where there is no necessity to suggest any reference to the moulting of the Eagle or Griffon, which it shares in common with all the feathered race, but simply to the great age to which, it is well known, all this class attain, paraphrasing the expression, "Thy youth is renewed, so that in point of strength thou art like the eagle." It is said that in confinement an Eagle has been known to live upwards of 100 years. One was kept at Vienna for 104 years.

Its strength is noticed in various prophetical writings. "A great eagle, with great wings, longwinged, full of feathers, which had divers colours, came unto Lebanon,

* If the story of the Phœnix were in existence so long back, this might refer to it.

and took the highest branch of the cedar" (Ez. xvii. 3). "They shall mount up with wings, as eagles" (Isa. xl. 31). The strength of the Griffon is best seen when it rushes past the spectator on some mountain side, beating the air with the strokes of its wings, while its long pinion feathers bend and curl under its weight, as it wheels in rapid circles till lost to sight overhead. Its swiftness is frequently noticed. "My days are passed away, as the eagle that hasteth to the prey" (Job ix. 26). "The Lord shall bring a nation against thee from far, from the end of the earth, as swift as the eagle flieth" (Deut. xxviii. 49), was the warning of Moses to Israel, fulfilled when the Chaldæans came "as the eagle that hasteth to eat" (Hab. i. 8). "He shall come as an eagle against the house of the Lord" (Hos. viii. 1). "Our persecutors (the Chaldæans) are swifter than the eagles of the heaven," exclaims Jeremiah, witnessing the ravages of their armies (Lam. iv. 19). So in the dirge over Saul and Jonathan, they are said to have been "swifter than eagles" (2 Sam. i. 23).

So, too, with its power of flight is combined the acuteness of sight already referred to. Job accurately describes the habits of the Griffon. "Doth the eagle (*nesher*) mount up at thy command, and make her nest on high? She dwelleth and abideth on the rock, upon the crag of the rock, and the strong place. From thence she seeketh the prey, and her eyes behold afar off. Her young ones also suck up blood: and where the slain are, there is she" (ch. xxxix. 27–30).

So the fastnesses of Edom, amid the gorges of Petra, are described by Jeremiah as no security against the vengeance of Jehovah. "O thou that dwellest in the clefts of the rock, that holdest the height of the hill: though thou shouldest make thy nest as high as the eagle (*nesher*), I will bring thee down from thence, saith the Lord" (ch. xlix. 16). While the eagles and other birds are content with lower elevations, and sometimes even with trees, the Griffon alone selects the stupendous gorges of Arabia Petræa, and of the defiles of Palestine, and there in great communities rears its young, where the most intrepid climber can only with ropes and other appliances reach its nest.

The Eagle (*nesher*), as emblematic of divine attributes, is one of the four living creatures in the vision of Ezc-

kiel (ch. i. 10), as also in that of St. John, to whom, from his keen insight into heavenly truths, and his near approach to the brightness of the divine glory in the revelation vouchsafed to him, this bird has been assigned as an emblem.

Lastly, its care for its young is twice seized upon as an illustration of God's fatherly care over his people. "As an eagle (*nesher*) stirreth up her nest, fluttereth over her young, spreadeth abroad her wings, taketh them, beareth them on her wings: so the Lord alone did lead him" (Deut. xxxii. 11, 12).* "Ye have seen . . . how I bare you on eagles' wings, and brought you unto myself" (Ex. xix. 4). The pains which all birds of prey take in encouraging their young ones to fly, and in coaxing them to leave the nest, is well known to all who have observed them. The account given by Sir H. Davy of his watching a pair of golden eagles thus occupied has been often quoted. "I once saw a very interesting sight above the crags of Ben Nevis. Two parent eagles were teaching their offspring, two young birds, the manœuvres of flight. They began by rising from the top of the mountain, in the eye of the sun. It was about mid-day, and bright for the climate. They at first made small circles, and the young birds imitated them. They paused on their wings, waiting till they had made their flight, and then took a second and larger gyration, always rising towards the sun, and enlarging their circle of flight, so as to make a gradually ascending spiral. The young ones still and slowly followed, apparently flying better as they mounted; and they continued this sublime exercise, always rising, till they became mere points in the air, and the young ones were lost, and afterwards their parents, to our aching sight."

The number of griffons in every part of Palestine is amazing, and they are found at all seasons of the year. I do not think I ever surveyed a landscape without its being enlivened by the circling of a party of griffons. Many colonies of eyries came under our observation in the gorge of the Wady Kelt, near Jericho (by some supposed to be the Cherith); in the cliffs near Heshbon,

* It is, perhaps, worthy of remark in connection with this expression in the writings of Moses, who had studied Egyptian learning, that the Griffon appears to have been sacred in ancient Egypt to Maut, the goddess of Maternity.

under Mount Nebo; in the ravine of the Jabbok; in a gorge near Rabbath Ammon; in the gorge of the Litany River. Two large colonies inhabit ravines on the north and east of Mount Carmel; but the most populous of all were the 'griffonries' in the stupendous cliffs of the Wady Hamam, 'the robbers' caves,' and in the deep glen of the Wady Leimun, opening on to the Plain of Gennesaret. In either of these sublime gorges the reverberating echoes of a single rifle would bring forth griffons by the hundred from their recesses. I counted, on one occasion, 120 thus roused, and then gave up the reckoning in despair. Few ravines can surpass in grandeur these gorges (the Beth-Arbel of Hos. x. 14), though they are wholly without the setting of mountain scenery. Wady Hamam is celebrated in Jewish history as the stronghold of a powerful band of robbers and rebels, who for years set at defiance all the power of Herod and the Romans. On either side the cliffs rise to a height of more than 800 feet, perforated and honeycombed by a multitude of caverns, holes, and narrow passages, with broken galleries and arches almost suspended in mid-air, with their basements worn away by the action of time on the soft limestone. From the days of Titus to the present these caverns have remained the undisturbed home of the griffons, which have appropriated galleries and chambers, whether inner or outer, to their domestic purposes, more secure than the Edomites, who set their nests in the rock; while even the shepherds of the neighbourhood have a superstitious dread of investigating them.

The griffons were in the habit of soaring high, and sweeping the horizon about daybreak; then in about two hours they would return, and either betake themselves to the duties of incubation, or perch motionless in long rows on the most conspicuous ledges and points of the precipices until the evening; they would then take a little airy exercise before retiring to rest. Like all other carrion feeders, they must have the power of enduring prolonged abstinence, for it was utterly impossible that the neighbourhood of Gennesaret could afford sustenance to the 500 birds—on the lowest computation—which inhabited the valleys close to it; yet, so far as we could observe, for many days neither the sitting birds nor their mates ever left the wadys for

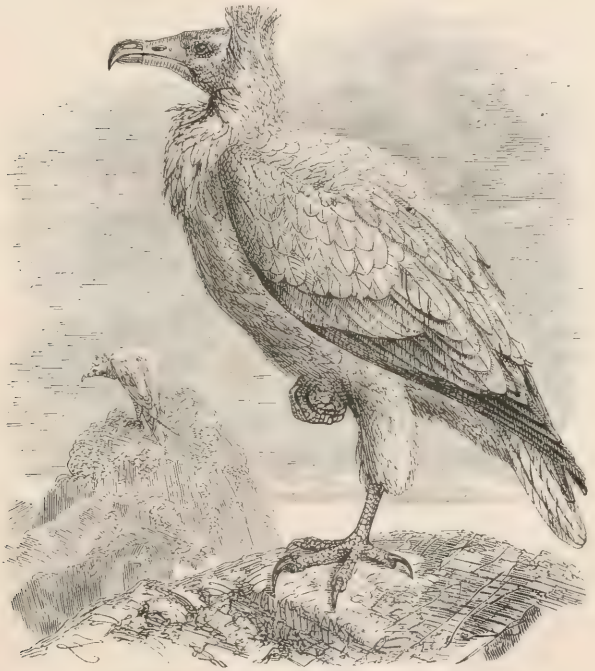
more than an hour or two. Nor were they first in the field for what little carrion our immediate neighbourhood afforded. The wolves and jackals generally came in for the lion's share of the feast whenever a horse or a cow died near our camp, a very frequent occurrence. Their enormous capacity for food, combined with the power of long abstinence, is a wonderful provision of creative wisdom for carrion feeders, whose supply is so uncertain, while the necessity for the immediate removal of offensive matter is so urgent.

On a subsequent occasion, on the north side of Hermon, we observed the griffons teaching a lesson of patience to the inferior scavengers. A long row of Egyptian vultures were sitting on some rocks, so intently watching a spot in a cornfield, that they took no notice of our approach. Creeping cautiously near we watched a score of griffons busily engaged in turning over a dead horse, one side of which they had already reduced to a skeleton. Their united efforts had just effected this when we showed ourselves, and they quickly retired. The inferior birds, who dreaded us much less than them, at once darted to the repast, and, utterly regardless of our presence within ten yards of them, began to gorge. We had hardly retired 200 yards when the griffons came down with a swoop, and the Egyptian vultures, and a pair or two of eagles, hurriedly resumed their posts of observation; while some black kites remained, and contrived, by their superior agility, to filch a few morsels from their lordly superiors.

The Griffon is by no means an unamiable or disgusting bird. He is certainly cleanly in his habits, docile, and of remarkable intelligence. With his fellows he is good-tempered, and, voracious as he is, never grudges to share the feast with as many as choose to join him. There is none of the snarling or quarrelling of the canine tribe, nor any attempt to rob a weaker cousin of his portion, or to devour a savoury morsel in secret; but each of the company amicably keeps his place, without attempting to eject his neighbour. They are easily tamed, and we brought up two from the nest, which were reared, and arrived safely in England.

The Griffon is found in all the warmer parts of the Old World, from the Himalaya to Spain and Morocco, and throughout Africa to the Cape of Good Hope. It

measures about 4 feet 8 inches in length, and 8 feet in expanse of wing. The nest is sometimes large, but frequently scanty, formed of sticks and turf, and it lays one egg in February or March. Its plumage is an uniform brown, with a fine ruff of whitish down round the lower part of its neck, at the termination of the bare portion. Its beak is hooked and of great power, but its claws and feet are much weaker than those of the Eagle, and are not adapted for killing prey.



EGYPTIAN VULTURE. (*Neophron percnopterus.*)

(4.) *Racham*, 'GIER-EAGLE' (Lev. xi. 18; Deut. xiv. 17.—The name does not occur elsewhere in Scripture. It is identical with the Arabic vernacular *Rachmah*, the Egyptian Vulture,* or Pharaoh's Hen—*Neophron per-*

* This bird extends to the Cape of Good Hope. The Indian race, though differing very slightly, appears to be distinct from the Western form.

cnopterus of naturalists—a well known and very common bird in all the warmer parts of the Old World, from the Pyrenees to Southern India, and, through all Africa. It is a true scavenger, an eater not only of carrion, but of every kind of filth, offal, and garbage, and, though elegant in plumage and appearance on the wing, is most disgusting not only in habits, but in odour and appearance on a close inspection. Yet it is most highly valued for its useful habits in ridding the slovenly inhabitants of the putrid carcases and decaying matter which would otherwise breed a pestilence in their towns, and is rigorously protected. Its long, feeble, and but slightly curved bill, and its weak feet and claws, separate it widely both from the Griffon, Eagle, and all other birds of prey, with which it is never classed or confused by the Easterns.

Although often seen sailing under the griffons, it seems conscious of its inferiority, and never consorts with them, always deferentially making way as they approach. It lives in pairs, only congregating over its food, nor does it ever breed in colonies, and seldom are two nests found together. These, though always in the cliffs, are generally low down, and comparatively easy of access. The nest is an enormous collection of sticks, clods of turf, bullocks' ribs, pieces of sheepskin, old rags, and whatever else the neighbourhood of a camp or village may afford. The eggs are two, very rarely three in number, and are of a rich red colour, or mottled with red.

It is in the Holy Land a migratory bird, never seen in winter, but scattered over every part of the country in spring, so that one cannot travel a mile or two in any part without putting up a pair, which quietly rise and sweep past the traveller, their black wings finely contrasting with the white plumage of the rest of their body. It is familiar in the neighbourhood of man, and fearlessly resorts to the dung-hills of the villages to feed. The young bird, until it is two years old, is of an uniform sooty brown colour, and in this plumage it has been killed in England. The length of the Egyptian Vulture is a little more than two feet. Its Hebrew name is derived from a root signifying to love, probably from the male and female never parting company.

(5.) *Dayah*, 'Vulture.'—So translated in Lev. xi. 14; Deut. xiv. 13; and in Isa. xxxiv. 15. "There shall the vultures also be gathered, every one with her mate." In Job (xxviii. 7) another word, *Ayah*, is rendered 'Vulture,' which is elsewhere more correctly expressed by 'Kite.' There is no doubt that '*dayah*' properly means not what we understand by 'Vulture,' but some of the smaller birds of prey, as the kites; and possibly including the buzzards, both of them formerly familiar and well known birds in the English landscape, but now almost extinct in this country, and only existing in very small numbers in some of the remotest and wildest nooks of the island.

The Hebrew '*dayah*' is evidently the same as the Arabic '*h'dayah*,' the vernacular for the Kite, and when used without the epithet 'red,' commonly confined to the Black Kite, *Milvus migrans* of naturalists. The habits of the bird bear out the allusion in Isa. xxxiv. 15, for it is, excepting during the winter three months, so numerous everywhere in Palestine as to be almost gregarious. It returns about the beginning of March, and scatters itself over the whole country, preferring especially the neighbourhood of villages, where it is a welcome and unmolested guest. It does not appear to attack the poultry, among whom it may often be seen feeding on garbage. It is very sociable; and the slaughter of a sheep near the tents will soon attract a large party of black kites, which swoop down regardless of man and guns, and enjoy a noisy scramble for the refuse, chasing each other in a laughable fashion, and sometimes enabling the wily Raven to steal off with the coveted morsel during their contention. It is the butt of all the smaller scavengers, and is evidently most unpopular with the crows and daws, and even with the rollers, who enjoy the amusement of teasing it in their tumbling flight, which is a manœuvre most perplexing to the Kite.

It is careless in the selection of a spot for its nest, generally selecting a tree, often in a glen, sometimes the roots of a shrub growing out of a cliff, and frequently a mere ledge in the rocks. The nest itself is a grotesque, untidy structure, composed principally of sticks, with a lining of rags and wool, decorated with old pieces of cloth of various colours, the cast-off skins

of serpents, strips of bark, wings of fowls, and such like, hung about it, and on the branches near it, as if to attract observation. It lays two or three eggs. It is a plain coloured bird, with uniform blackish-brown plumage on the back, and tawny underneath, and with a long tail, not so forked as that of the Red or so-called Common Kite. Its length is about twenty-one inches. Its fearless and familiar manner and graceful flight render it a very interesting bird to watch. There is another closely-allied species, the Egyptian Kite (*Milvus ægyptius*), very like it, but rather lighter in plumage, with the bill whitish instead of black, which is not unfrequent in Palestine, and is not distinguished by the Arabs.

OSPREY. (*Pandion haliaëtus.*)

(6.) *'Asniyeh*, 'OSPREY.'—This word occurs only twice —in Lev. xi. 13, and Deut. xiv. 12—among the list of unclean birds. Many commentators and the old versions support the translation of 'Osprey,' the Fish-eating Eagle (*Pandion haliaëtus*), but some have suggested the Sea-Eagle (*Haliaëtus albicilla*). The latter is out of the question, because it very rarely wanders to the coasts of

Syria, though it breeds occasionally in Lower Egypt. The Osprey, however, is found there constantly, but in small numbers. It could never, however, have been plentiful, as its food consists exclusively of fish, and the supply of these is limited to a few districts of the Holy Land, while the rivers near the coast, and the rocky parts of the shore, are the only localities adapted to its habits, the Jordan valley and the Sea of Galilee being avoided by this cosmo-

SHORT-TOED EAGLE. (*Circaëtus gallicus.*)

politan bird, whose home is alike the lakes and tarns of Northern Europe, the coasts of Europe, Asia, Africa, Australia, and North America, and which nests on the shores of the Red Sea.

Yet our translators were doubtless correct in assigning to the Hebrew *'Asniyeh*, the Osprey, as the closest in size and appearance to the lesser eagles, for which most

probably it stands. The Hebrews would have called the Osprey *'Asniych;* yet, if the term be more than a generic one, we must apply it especially to the Short-toed Eagle (*Circaëtus gallicus* of Southern Europe), a fine and majestic bird in its flight; by far the most abundant of all the Eagle tribe in Palestine, and very much of the size and appearance of the Osprey. It is more than two feet long, and is very large and heavy in shape. The upper plumage is light brown, and the lower white with dark crescent-shaped spots. The eyes are very large and owl-like, and the feet and toes curiously covered with the reticulated scales, a sort of chain-armour, most invaluable doubtless in protecting it against the bite of serpents, which are its common food.

It is by preference a reptile feeder, and consequently is more scarce in winter, when it probably withdraws into the Arabian deserts for the two or three months during which the snakes and lizards hybernate in the colder region of Palestine. It remains, however, on the coast and plains, where there are abundance of frogs to be had at all seasons. I do not know a more magnificent-looking bird, as it sits with its great flat head bent down on its shoulders, its huge yellow eyes glaring around, and the bright spotting of its breast and abdomen as distinct as that of a missel-thrush. It is very noisy, and always betrays the neighbourhood of its nest by the loud harsh scream with which the male and female pursue each other, rising into the air and making short circling flights, after which they suddenly drop down, one to the nest, the other to a neighbouring post of observation. They will often dash down from the cliffs to the fields below, sweep for a few minutes like a harrier, and then, seizing a snake, sit down and occupy some minutes in killing the reptile, after which they carry the prize away in their claws, not, like most other eagles, devouring it on the spot. The nest is upon rocks or in trees, and it rears one, rarely two, young.

There are several other species of Eagle in the Holy Land, which are doubtless included under the term *asniych.* These are the Golden Eagle (*Aquila chrysaëtus*), identical with the well known Golden Eagle of Scotland, but which is not very common in Palestine, being found chiefly in the northern mountain districts. The Imperial

Eagle (*Aquila mogilnik*), rather more common than the last, a very noble bird, fearless and solitary, which may at once be recognised by its dark plumage and white shoulders. Three other eagles also are tolerably common, but nowhere in great numbers together—the Tawny Eagle

GOLDEN EAGLE. (*Aquila chrysaëtus.*)

(*Aquila nævioïdes*), the Spotted Eagle (*Aquila nævia*), and the Bonelli's Eagle (*Aquila fasciata*). Probably there are twice as many of the Short-toed Eagle in Palestine as of all the other species together. All these eagles eat carrion, though when hard pressed they will, unlike the vultures, kill their own food. Bonelli's Eagle constantly does this, and attacks game and pigeons. There

is another true Eagle, the Booted Eagle (*Aquila pennata*), but it is very small, and so like the Buzzard in form and size, that the Arabs do not distinguish it. It is a bold, falcon-like bird, and kills its own game.

(7.) *Raah*, 'GLEDE,' occurs only in Deut. xiv. 13, among the unclean birds of prey. The name appears to be derived from its keenness of vision. But there is some question as to the reading, since the word does not occur in the parallel passage in Leviticus. Our translators have distinguished in Deuteronomy between the 'Kite' and the

BUZZARD. (*Buteo ferox.*)

'Glede,' though they are often used synonymously in England. But in the northern counties and in Ireland, 'glede' is applied to the Buzzard, which is probably therefore the bird intended by our version. We have no further clue to the exact bird denoted by *raah*. There are three species of Buzzard in Palestine; one of them, the large Red Buzzard (*Buteo ferox*), is rather common. It is as large as a small eagle, which it much resembles, and kills its prey for itself, consorting often with the Short-

toed Eagle. It is not generally an European or North African bird, but reaches from Syria to India.*

There are also three species of large Falcon: the Peregrine, the Sakk'r, and the Lanner. None of these are enumerated specially in Leviticus, at which omission we need not be surprised: for, though well known to all falconers, they would not be regarded as valuable by the Jews, and are too sparingly scattered to claim a distinct notice among the unclean birds. *Raah* may probably, then, be interpreted generally of the buzzards and other large hawks.

KITE. (*Milvus regalis.*)

(8.) *Ayah*, 'KITE.'—The Hebrew word occurs in three places—Lev. xi. 14, Deut. xiv. 13, and in Job xxviii. 7, where it is translated 'vulture.' "There is a path which no fowl knoweth, and which the vulture's (*ayah*) eye

* This bird, though less extended in its range than its smaller congener, *B. desertorum*, is nevertheless entitled to be considered European, from being found above the Moravian settlements near the mouth of the Volga, and African, as occurring commonly in Abyssinia.

hath not seen." From the expression in Lev. and Deut., 'the kite *after his kind*,' the name may very properly be taken as generic, including several species. In the passage in Job we find the '*ayah*' selected as affording the strongest instance of that keenness of sight for which all birds of prey are so remarkable. This affords us a clue to its identification. The deep mines which man explores in the bowels of the mountains in search for metals, are said to be untracked even by its keen vision.

Though we have no modern Arabic name corresponding to '*ayah*,' it seems probable that the translation 'kite' is correct, being supported by several ancient versions, while the Kite has powers of sight, pre-eminent even among birds of prey. Some commentators take it to be the Merlin, from its Arabic name *yuyu*, given from its note, but which would answer for other raptorial birds, while the Merlin is only a rare winter visitant to Syria and Egypt.

The Kite (*Milvus regalis*) is very common in winter all over Palestine, but rather scarcer in the summer in the lowlands, as it retires to the mountains to breed. A few, however, may always be found in most localities. It was once well known and familiar in England, and foreigners visiting London in the seventeenth century were astonished at the numbers of kites hovering over the metropolis; but now very few untravelled Englishmen have ever seen this noble bird suspended, apparently motionless, in mid-air, rising imperceptibly higher and higher till it becomes a mere speck in the field of vision, as it keenly scans the prospect from its aerial position in search of offal or carrion, on which it descends with a rapid swoop. When it sails in circles, its rudder-like tail, by its inclination, gently steers the curve. It then stops, and remains stationary for a time, the tail expanded widely, and with its long wings sustaining its light body.

In Palestine we found it breeding on Carmel, near Nablous, and in the hills of Northern Galilee. In winter it is gregarious on the coast and in Southern Judæa, and is very abundant in the wilderness to the west of the Dead Sea, and in the whole desert and plateaux round Beersheba, hanging about the neighbourhood of the Bedouin camps and their cattle. In wet and stormy weather the kites gather like rooks, and sit motionless for hours on a wall or in a clump of trees, so long as the moisture in the atmosphere renders their keen

sight useless. The Kite, like the Short-toed Eagle, always seizes its prey on the ground. Moles, rats, mice, frogs, and the young of game birds are its favourite food. It reaches a length of twenty-seven inches, and is of a reddish colour, with very long pointed wings, and a long, deeply-forked tail. It is known as the Red Kite by the Arabs, who always distinguish it from the Black Kite, to which indeed it bears but little resemblance in appearance.

KESTREL. (*Tinnunculus alaudarius.*)

(9.) *Netz*, 'HAWK.'—All the smaller birds of prey are included under the Hebrew '*netz*,' but with the addition 'after his kind,' showing that the sacred writer was well aware of the numerous species included under the term. [See Lev. xi. 16; Deut. xiv. 15.] In Job (xxxix. 26) we read, "Doth the hawk (*netz*) fly by thy wisdom, and stretch her wings toward the south?" This may refer either to the migratory habits of many of the smaller birds of prey, or to their power of flying right in the sun's eye without being dazzled by its rays. The ancients believed this to be a peculiar power of the eagles and hawks. The commonest of the small raptorial

birds in Palestine is the Kestrel (*Tinnunculus alaudarius*), identical with our common but very beautiful English bird. In the Jordan valley and in the Eastern forests, among the ruins of Rabbath Ammon and Gerash, in the desolate gorges of the Dead Sea, up to the confines of the southern desert, among the luxuriant gardens of the coast, and in the sacred recesses of the mosques of Hebron and Jerusalem (the area of the Jewish temple), it equally abounds. It is generally gregarious, ten or twenty pairs breeding in the same ruins. It often builds its nest in the recesses of the caverns occupied by the griffons, sometimes in friendly consort with the jackdaws, and is the only bird which the eagles appear to permit to live in close proximity to them.

Another very pretty species is the Lesser Kestrel (*Tinnunculus cenchris*), a smaller and more richly-coloured bird, always distinguished by the Arabs, and which is, unlike the last, only a spring and summer visitant to the Holy Land. It lives in large communities, often in the towns, in the towers of mosques and churches, or, as at Nazareth, in the roofs of the old quarried caves under "the brow of the hill whereon the city was built." There are hundreds about the old English church at Lydda, said to have been built by Richard Cœur de Lion. It lives entirely on insects, and may be seen in the open glades, or among the lanes between the gardens in the suburbs of the villages, pursuing insects, and especially catching cockchafers with its claws, towards evening. It is distinguished from the Common Kestrel by having white claws instead of black, and the Arabs call this the white-nailed, the other the black-nailed, '*bashik*.'

Other summer birds of prey in Palestine are the Hobby Hawk (*Falco subbuteo*), the Eleonora Falcon (*Falco eleonoræ*), the Black-shouldered Hawk (*Elanus cæruleus*), the Red-legged Hobby (*Falco vespertinus*); but none of these are very common, merely occurring in pairs or small parties here and there in woods or olive-yards. The Sparrow-hawk (*Accipiter nisus*) is plentiful, living upon marsh sparrows and turtle-doves. Another little Eastern Sparrow-hawk (*Accipiter brevipes*) also occurs, but not in any numbers.

We have thus noticed all the diurnal birds of prey which are ordinarily met with in the Holy Land, with the exception of the Harriers, of which four species are

found.* The Marsh Harrier (*Circus æruginosus*) is very common, and three other species, especially the Hen Harrier (*Circus cyaneus*), frequently occur on all the plains and lowlands. The Arabs do not distinguish these from the buzzards.

(10.) *Tachmás*, 'NIGHT-HAWK.'—The word occurs only in the list of unclean birds in Lev. xi. 16, Deut. xiv. 15. There have been many conjectures as to the exact bird here intended, and almost every commentator has started a new theory. Our translators probably meant to express the Night-jar, or Goat-sucker, a well-known nocturnal class of birds (*Caprimulgus*) allied to the swifts, of which one species visits our islands in summer, and three species, including our own (*Caprimulgus europæus*), are known in Palestine. This bird has been the subject of many superstitions, from the days of Aristotle downwards, owing to its strange cry, only heard at night, and its silent, ghost-like flight. But it is scarcely so common or so easy to be obtained as to render it a probable article of food under any circumstances.

Bochart has argued in favour of *tachmás* signifying the male ostrich, from a fanciful etymological derivation; but there was no reason for the Ostrich being named twice in the list, and the derivation, moreover, points to some bird of prey; nor, on the other hand, is it probable that any small bird, like the Swallow, which some have suggested, would be mentioned in the concise enumeration of the Mosaic law.

The old versions render '*tachmás*' a kind of owl, and they are probably correct. It is impossible to decide certainly to which of the five common owls of Palestine and Egypt the name will apply. The derivation of '*tachmás*' is from a root signifying 'to tear or scratch the face.' There are many superstitions in the East respecting the powers of a species of owl, which is supposed to glide into chambers at night and tear the faces of children in their sleep. It is believed that the spirit of evil frequently assumes the incarnation of an owl to carry off children.

The Swedish traveller, Hasselquist, in the middle of the last century, who was the first naturalist who, as such, visited the Holy Land, evidently took this bird of ill omen to be the Egyptian Horned Owl (*Bubo ascala-*

* Probably the Honey Buzzard and Goshawk should also be included amongst the diurnal raptores of Syria.

phus), and called it *Strix orientalis*. But, from questioning the natives, I believe that it is not this bird, but the Common Barn Owl, identical with our own well known bird *Strix flammea*, often called the Screech-owl, which is intended. It is easy to understand how the light plumage, ghost-like, noiseless flight, and unmusical screech of this bird, heard suddenly in the stillness of the night, almost always in the ruins and caves which local superstition has peopled with 'jinns' or sprites, should have earned for it this evil character. The Barn Owl is as common in Palestine as in England.

(11.) *Bath-haya'anah*, 'Owl.'—So translated in Lev. xi. 16, and Deut. xiv. 15, in the list of unclean birds. It also occurs in six other passages, viz. Job xxx. 29, "I am a companion to owls;" Isa. xiii. 21, "Owls shall dwell there;" xxxiv. 13, "It shall be . . . a court for owls;" and xliii. 20. Also Jer. l. 39, "Owls shall dwell therein;" and Mic. i. 8, "Mourning as the owls." In the first four of these passages the marginal reading is 'ostrich,' which is most probably the true rendering of the word. [See Ostrich.]

(12.) *Yanshooph*, 'Great Owl' (Lev. xi. 17; Deut. xiv. 16). In Isa. xxxiv. 11, it is translated 'owl:' "The owl also and the raven shall dwell in it: and he shall stretch out upon it the line of confusion, and the stones of emptiness." From the etymology, it is tolerably evident a nocturnal bird is meant, as the name seems to be derived from the Hebrew word for 'twilight.' Some commentators have imagined the Ibis to be intended, but the passage in Isaiah plainly puts this interpretation out of the question, for the Ibis (*Ibis religiosa*) is strictly a bird of the reedy marshes and mud flats, the very last to be thought of among the ruins of Petra. In a rocky mountain defile, whether cultivated or desolate, the sacred Ibis could never subsist.

The Great Owl, which is signified in these passages, is doubtless the Egyptian Eagle-owl (*Bubo ascalaphus*), which in Egypt, Arabia, and Syria takes the place of the Eagle-owl (*Bubo maximus*) of Central and Southern Europe.* It is a large and noble-looking bird, nearly

* These birds seem both to have wide ranges from west to east' but *Ascalaphus* always is more southerly than *Maximus*, which goes a long way north in Europe. *Ascalaphus* ranges from Mogadore to India; *Maximus* from France to the coast of China.

two feet long, very full shaped, with a head large even for an owl, and elongated tufts of ear feathers. It is most abundant about the ruined temples of Egypt, in the pyramids, where it nestles; and especially plentiful in the rock tombs of Petra, the ancient Edom, thus literally fulfilling the prediction. It inhabits ruins and caves all over the Holy Land.

We found it in tombs in Carmel, in the robbers' caves near Gennesaret, in the hermit caves above Jericho, among the ruined cities of Southern Judah, and in the desert wadys near Beersheba, among the temples of Rabbath Ammon; in fact, everywhere where man has been, and is not. Its cry is a loud, prolonged, and very powerful hoot. I know nothing which more vividly brought to my mind the sense of desolation and loneliness than the re-echoing hoot of two or three of these great owls, as I stood at midnight among the ruined temples of Baalbek. In the wilderness of Judea, where there are no ruins above ground, the Great Owl burrows in the sandbanks, and there lays its eggs. When startled during the day-time it soon takes refuge in a burrow. We never observed it in inhabited cities, or near the dwellings of man. I can find no difference between this bird and *Bubo bengalensis*, the Great Horned Owl of India. The plumage is of a light tawny or sand colour.

(13.) *Côs*, 'LITTLE OWL' (Lev. xi. 17; Deut. xiv. 16); 'OWL' (Ps. cii. 6): "I am like a pelican of the wilderness, I am like an owl of the desert" (Heb. 'of ruined places'). This points clearly to some species of owl, a bird which is very appropriately called by the Arabs 'mother of ruins.' All the old versions agree in this rendering. Besides the White Owl, and the Great Horned Owl mentioned above, there are three other species common in Syria and Egypt. These are the Hooting or Wood Owl, well known in England (*Syrnium aluco*), the Little Owl (*Athene persica*), and the Scops-eared Owl (*Scops giu*). For these three we have three Hebrew words, that under consideration, and the two following. It is difficult to discriminate between them, though we may reasonably conjecture that the five Hebrew words occurring in the sacred writings for the Owl, should be assigned respectively to the five species which are by far the most abundant in Syria and Egypt:

for, though several other kinds of Owl are found there, they are none of them common, or likely to attract the attention of those who were not naturalists.

The Little Owl, to which species I should feel disposed to assign '*cós*,' is by far the most abundant of all the owls in Palestine. It is only to be distinguished from the 'Little Owl' of southern Europe (*Athene noctua*), by its lighter-coloured plumage, a variation due simply to climate. The 'Boomah,' as the Arabs call him, from his note, is a grotesque and comical-looking little bird, familiar, and yet cautious, never moving unnecessarily,

LITTLE OWL. (*Athene persica.*)

but remaining glued to his perch, unless he has good reason for believing he has been detected, and twisting and turning his head instead of his eyes, to watch what is going on. He is a great favourite, and considered lucky; there is, therefore, a strong prejudice against his being molested, which may partly account for his exceptional numbers.

In the olive-yards round the villages, in the rocks of the wadys, in the thickets by the water-side, in

the tombs or on the ruins, among the desolate heaps which mark the sites of ancient Judah, on the sandy mounds of Beersheba, or on the spray-beaten fragments of Tyre, his low wailing note is sure to be heard at sunset, and himself seen bowing and keeping time to his own music. The Little Owl breeds in holes of trees, or in walls or rocks, and especially down the sides of old wells. This owl was the symbol of ancient Athens, the bird of Minerva, or of wisdom, admirably depicted on its coins. It is very small, only eight inches in length, and of a mottled light brown or sandy colour.

SCOPS OWL. (*Scops giu.*)

(14.) *Kippoz*, 'GREAT OWL,' occurs only once. "There (in Edom) shall the great owl (*kippoz*) make her nest, and lay, and hatch, and gather under her shadow" (Isa. xxxiv. 15). Some owl is most probably intended, but what species, it is impossible to decide. The word is very possibly an imitation of the cry of the Scops Owl (*Scops giu*), called '*maroof*' by the Arabs, and which is very common about ruins, caves, and the old walls of towns. Its note is well represented by the name *kippoz*.

It is a migrant, returning to Palestine in spring. It is the smallest owl in the country, being little more than seven inches in length, with long ear tufts, and its whole plumage most delicately mottled and speckled with grey and light-brown. It has been occasionally killed in Britain, and is well known throughout all Southern Europe, being especially common in Italy.

(15.) *Lilith*, 'SCREECH OWL.'—The only passage in which the word occurs is Isa. xxxiv. 14; where the

TAWNY OWL. (*Syrnium aluco.*)

prophet, predicting the desolation of Idumea, says, "The screech owl [marg. 'night-monster'] also shall rest there, and find for herself a place of rest." The Rabbis say that the '*lilith*' is a spectre of the night, which takes the form of a beautiful woman, and carries off children to destroy them—a version, perhaps, of the *ghoul* of Arabian fables. Michaelis observes that "in the poetical description of desolation we borrow images, even from fables." But if, as seems more reasonable, some existent bird is intended, it must be an owl. We may take any of the species of the country to represent it. Perhaps

it may be allowed to stand for the Hooting or Tawny Owl (*Syrnium aluco*), which is common in Egypt and many parts of Palestine, and well known in this country, where its dismal hoot may often be heard in woods, waking the echoes of the night.

We saw many about the Cedars of Lebanon, and, when camping in the forest-country of Gilead in April, we heard its hoot night after night, and found a nest in an oak-tree. The plumage of Syrian specimens is of a much lighter and paler colour than in English birds, but the species is the same.* It is the most strictly nocturnal of all the owls. It is a large species, being seventeen inches in length. Its range extends from Britain to Japan, and from the Arctic Circle to Egypt.

The other owls of the Holy Land are the Indian Fish-owl (*Ketupa ceylonensis*), and the Long-eared and Short-eared Owls of this country (*Strix otus*, and *Strix brachyotus*), but they are not abundant.

In reference to the repeated connection of the Owl with the desolation of Edom in the prophecies, we may quote the following from Irby and Mangles in their description of Petra: "The screaming of eagles, hawks, and owls, which were soaring above our heads in considerable numbers, seemingly annoyed at any one approaching their lonely habitation, added much to the singularity of the scene."

* The larger proportion of tawny specimens in British collections beyond those from less game-preserved countries, probably arises from most of the English owls being killed before they have lived long enough to acquire the *very adult* grey plumage. A similar phenomenon may be observed (no doubt from the same cause) in male specimens of the Marsh Harrier.

CHAPTER VIII.

Birds.—Part II.

Raven, *'orēb.*—The Raven is the first bird specified by name in the Bible. When the waters of the flood

Raven. (*Corvus corax.*

began to decrease, Noah "sent forth a raven, which went forth to and fro [Heb. in going forth and returning], until the waters were dried up from off the earth" (Gen. viii. 7), *i. e.*, the Raven kept going and returning to the ark, resting on it, but not entering into it again, and finding its food in the floating carcases. No other bird was so well adapted to obtain its subsistence amidst the scene of desolation: and the fact that it did not re-

turn *into* the ark, would afford Noah a sign that the first stage of the subsidence of the waters was accomplished.

Under the term 'raven,' is included the whole family of the Crow tribe: crows, rooks, jackdaws, &c. (all very numerous in eastern countries), in the prohibition of Lev. xi. 15; Deut. xiv. 14, where "every raven after his kind," *i.e.*, all the species of crows, are forbidden as food. They are naturally esteemed unclean, as most of them feed principally or largely on carrion. The carnivorous propensities of the Raven, and especially its habit of attacking weak or sickly animals, and of always commencing by picking out the eyes, is alluded to in Prov. xxx. 17: "The eye that mocketh at his father, and despiseth to obey his mother, the ravens of the valley [Heb. ravine] shall pick it out, and the young eagles shall eat it." We have more than once seen the ravens thus attack a newly-dropped kid. The expression "the ravens of the valley (ravine)" aptly describes its favourite resorts; for, far as it roams for food during the day, its home is generally in some of the deep rocky glens or gorges with which Palestine abounds, and where it rears its young in security.

Its presence is thus taken as an illustration of the coming desolation of Edom. "The cormorant and the bittern shall possess it; the owl also and the raven shall dwell in it" (Isa. xxxiv. 11).

The Hebrew name of the Raven, *'oreb*, is from a root signifying to be black, and in Cant. v. 11, his dark, glossy plumage furnishes an image of the locks of the beloved: "His locks are bushy, and black as a raven."

The Raven is repeatedly cited as manifesting the goodness and care of God for His lower creatures. Not only is its home in desolate places, but its food is scanty and precarious, and must be sought out over a wide extent of country, as may be seen by its habit of flying restlessly about in constant search of food. "Who provideth the raven his food? When his young ones cry unto God, they wander for lack of meat," the Lord inquires of Job (ch. xxxviii. 41). And the Psalmist remarks, "He giveth to the beast his food, and to the young ravens which cry" (Ps. cxlvii. 9). Our Lord also sets forth God's providential care in the provision made for the Raven: "Consider the ravens: for they neither sow nor reap; which neither have storehouse nor barn;

and God feedeth them: how much more are ye better than the fowls?" (Luke xii. 24). The stories that the Raven turns its young out of the nest at so early a period that they are unable to provide for themselves, is entirely without foundation, for no bird is more careful of its offspring, till they are able to leave the nest. The notion is quite needless for the explanation of the illustration of God's care, but may have arisen from the fact that generally the young leave the neighbourhood of the parents very soon after they are full grown.

The account of the sustenance of Elijah by ravens, when in concealment by the brook Cherith, as related in 1 Kings xvii. 3-6, has given rise to much fanciful speculation. "I have commanded the ravens to feed thee there. So . . . the ravens brought him bread and flesh in the morning, and bread and flesh in the evening." Some have suggested Arabs, called *Orebim*, others that Elijah subsisted on the animals of which he plundered the ravens' nests. But "the text knows nothing of bird catching and nest robbing, but acknowledges the Lord and Creator of the creatures, who *commanded* the ravens to provide His servant with bread and flesh."—*Keil*, as quoted in *Bib. Dict.*, Art. RAVEN.

Of the Raven 'after his kind,' there are eight species found in Palestine: The Common Raven (*Corvus corax*), the Brown-necked Raven (*C. umbrinus*), the Square-tailed Raven (*C. affinis*), the Hooded Crow (*C. cornix*), a Rook (*C. agricola*), the Jackdaw (*C. monedula* and *C. collaris*), and the Alpine Chough on Lebanon and Hermon (*Pyrrhocorax alpinus*). The Carrion Crow and Red-legged Chough have not yet been noticed there. In no country are the species more numerous in individuals.

Of all the birds of Jerusalem, the Raven tribe are the most characteristic and conspicuous, though the larger species is quite outnumbered by its smaller companion, *Corvus umbrinus*. They are present everywhere to eye and ear, and the odours that float around remind us of their use. The discordant jabber of their evening sittings round the temple area is deafening. The caw of the Rook and the chatter of the Jackdaw unite in attempting to drown the hoarse croak of the old Raven, but clear above the tumult rings out the more musical call-note of hundreds of the lesser species. We used to watch this great colony as, every morning at day-break, they passed in

long lines over our tents to the northward; the rooks in solid phalanx leading the way, and the ravens in loose order bringing up the rear, far out of shot. Before retiring for the night, popular assemblies of the most uproarious character were held in the trees of Mount Olivet and the Kedron, and not till after sunset did they withdraw in silence, mingled indiscriminately, to their roosting-places in the sanctuary.

Even at the south end of the Dead Sea, where the ancient fortress of Masada overlooks a waterless, lifeless wilderness of salt-hills, the three species of Raven were to be found; and during our sojourn under Jebel Usdum, the salt mountain, we constantly saw the great ravens perched on the salt cliffs; though what, save a love of desolation, could have brought them there, it were hard to guess. Once, on the east side of the Dead Sea, close to a recent battle-field, the sun was not above the horizon, when we watched a steady stream of carrion eaters, who had scented the battle from afar, beginning to set in from the south. "Wheresoever the carcase is, there will the eagles be gathered together," and the ravens also, for all the vultures, kites, and ravens of North Arabia seemed to be rushing to the banquet.

The Raven is a bird of almost world-wide distribution. It is found from Iceland to Japan, through all Asia and Northern Africa, while the ravens of the American continent vary very slightly from it, and have often been looked upon as identical.

SPARROW. Heb. '*tzippor*.'—The Hebrew word occurs upwards of forty times in the Old Testament. In all passages, except two, it is translated indifferently 'bird' or 'fowl.' The equivalent Greek word, *στρούθιον*, occurs twice in the New Testament. The name is evidently generic, not denoting the House-sparrow, or any other species specially, but applied to all the varieties of small passerine birds, of which there is an immense number in every part of the world. There is no prohibition in the Levitical law against the use of any of the small birds as food; and from our Lord's observations, "Are not two sparrows sold for a farthing?" (Matt. x. 29)—"Are not five sparrows sold for two farthings, and not one of them is forgotten before God?" (Luke xii. 6) —we may infer that at that day, as at the present, they were commonly sold and eaten.

In no temperate country of the same extent are the passerine birds more numerous than in Palestine. Exclusive of the Crow tribe, of which there are nine species, we find at least 144 species enumerated as collected in the Holy Land; and this takes no account of the many so-called fissirostral birds, as the Kingfishers, Rollers, Swifts, Cuckoos, Hoopoe, and many others, doubtless grouped by the Hebrews under '*tzippor*.'

Most of the allusions to particular habits or characteristics of small birds have been already alluded to, such as their finding a secure refuge in the temple (Ps. lxxxiv. 3), their song, caution against snares, and migrations. The capricious timidity with which many birds will desert their nests for a slight cause, is also noticed in Prov. xxvii. 8: "As a bird that wandereth from her nest, so is a man that wandereth from his place."

One of the few definite allusions to a particular species appears to be that of Ps. cii. 7: "The sparrow that sitteth alone upon the housetop," which cannot be said either of the sociable House-sparrow, nor of any of those species closely allied to it, which are among the most sociable of birds. With some fair show of reason, the passage has been taken to refer to the habits of the Blue Thrush (*Petrocincla cyanea*), a very conspicuous and well known bird of South Europe and the Holy Land, which is solitary, and eschews the society of its own species, rarely more than two being ever seen together; and which is very fond of sitting on the ridge of a roof or on any conspicuous eminence, where it utters from time to time its plaintive and monotonous note.

Though the variety of birds of the passerine order is so great, they are not distinguished in the Holy Land by any special brilliancy of plumage, and there are few of those gorgeous liveries which clothe the feathered tribes of tropical regions. Indeed, in the desert regions the livery of most of the small birds is more sombre than of those of even our own more northern climate. A very large proportion of the species are identical with our own.

Our common House-sparrow is found on the coast in the towns, and inland its place is taken by a very closely-allied species, *Passer cisalpina*, and especially by *Passer salicarius*, the Spanish Sparrow, which breeds in countless myriads in the thorn-trees of the Jordan

valley until I have seen the branches borne down by the weight of the nests.

The Larks of Palestine are numerous alike in species and in individuals, and are everywhere far more abundant than the Skylarks in England. Indeed, they swarm in incredible numbers, especially on the southern plains. Though there are no less than fifteen species, all of which are tolerably common in different localities, they are, with one exception, quite as simple and plain in their plumage as our own. Of Titmice there are but two or three, identical with our species. The Pipits and Wagtails include all those familiar to ourselves. The Dipper, the Fieldfare, Song-thrush, and Blackbird, are the same as our own. But the Bulbul (*Ixus xanthopygius*), nearly allied to the Thrush tribe, and a songster which rivals the Nightingale, is a very marked and distinct species, of which we possess no representative.

There are a vast number of the warblers strictly so-called (*Sylviadæ*), including our Robin, which visits the country in great numbers in winter, the Willow Wren, Chiffchaff, Blackcap, Hedge-sparrow, Whitethroat, Nightingale, and Redstart, many of which remain there all the winter. No less than thirty-eight species are enumerated among the Palestine birds. The Chats, of which we have in England the Wheatear, Whinchat, and Stonechat, are very numerous. We obtained twenty species. By their lively motions and the striking contrast of black and white in the plumage of most of them, they are the most attractive and conspicuous bird-inhabitants which catch the eye in the hill country of Judæa, their favourite resort. Yet the unobservant natives have no name by which to distinguish them from Larks or other little birds.

Among the most conspicuous of the lesser birds are the Shrikes, or Butcher Birds (*Lanius*), of which the Red-backed Shrike is an English representative, while six species are common in Palestine. Our Starling, Chaffinch, Green Linnet, Brown Linnet, Goldfinch, and Common Bunting abound, while the place of the Yellowhammer is taken by several more southern and richly coloured species, as *Euspiza melanocephala*, *Emberiza cæsia*, and *E. ortulana*.

It must not, however, be supposed that these birds are all found together, or in the same district. Owing to the

great varieties in elevation, temperature, and degree of moisture in different parts of Palestine, there is far more difference between the ornithology of one district and another, than between that of the South of England and the North of Scotland. Thus the Larks, Pipits, and Chats abound in the hill country and wilderness of Judæa. On the maritime plains, and in the north of the country, we find chiefly the denizens of our own fields and woodland glades, while in the Jordan valley we have an entirely new group of birds, more like those of India or Abyssinia, the Bulbul, Bush-babbler (*Crateropus chalybeus*), Orange-winged Grable (*Amydrus tristramii*), and especially the beautiful little Sun-bird (*Nectarinia oseæ*), a tiny little creature of gorgeous plumage, rivalling the Humming-birds of America in the metallic lustre of its feathers, green and purple, with brilliant red and orange plumes under its shoulders.

Swallow.—Two Hebrew words are thus translated. (1.) '*Deror:*' "Yea, the sparrow hath found an house, and the swallow a nest for herself, where she may lay her young, even thine altars, O Lord of hosts, my King, and my God" (Ps. lxxxiv. 3); "As the bird by wandering, as the swallow by flying, so the curse causeless shall not come" (Prov. xxvi. 2). (2.) '*Agur:*' "Like a crane [*sîs*] or a swallow ['*agur*], so did I chatter" (Isa. xxxviii. 14); "Yea, the stork in the heaven knoweth her appointed times, and the turtle and the crane [*sûs* or *sîs*], and the swallow ['*agur*] observe the time of their coming, but my people know not the judgment of the Lord" (Jer. viii. 7). The first word, '*deror*,' means the bird of freedom, and almost all commentators agree in referring it to the Swallow, from its swiftness, wandering habits, love of freedom, and the impossibility of retaining any of the Swallow tribe in a state of captivity. It may, however, also include other swiftly-flying birds.

With respect to the second word, ''*agur*,' it would appear that our translators have simply interchanged the rendering, and that *sûs* should be translated 'swallow,' or rather 'swift,' and '*agur* 'crane.' Instead of 'crane and swift,' we should simply read 'swift and crane.'

The vernacular Arabic throws a new and most interesting light on the meaning of the Hebrew. The Swifts

are known in Arabia by the name *sûs*, identical with the Hebrew, and thus the rendering is conclusively settled. This interpretation gives additional force to both passages—"Like a swift [*sîs*], so did I chatter." Now, while the note of the Swallow is not very frequent, and is low and harmonious, that of the Swift is, as is familiarly known, a harsh, constantly-repeated cry, as of anguish or grief.

Again: "The swift [*sûs*] . . . . observe the time of their coming." Now, in Palestine, the Swallow is only a partial migrant, many remaining through the winter.

SWIFT.

The Swift, on the contrary, is a regular migrant, returning in myriads every spring, and so suddenly, that, while one day not a Swift can be seen in the country, on the next they have overspread the whole land, and fill the air with their shrill cry.

Sûs or *sîs* appears to be derived from the rushing sound made by the bird in its flight, and is strictly referable to the Swifts (*Cypselus*)—a genus well known in all countries, and ordinarily classed with the Swallow, to which it bears much outward resemblance in its flight, habits, and migration, but from which naturalists separate it entirely on account of its anatomical structure.

The habits of the Swallow and Swift tribes are aptly set forth in the passages in the Old Testament where the birds are mentioned, and in which their nidification, flight, migration, and note are alluded to. In Palestine, as elsewhere, the various species of Swallow appear to seek the neighbourhood of man, and select especially the walls of cities and the towers of churches and mosques for their nesting-places. "The swallow hath found a nest for herself, even thine altars, O Lord of hosts." Still the Swallow seeks the temple enclosure at Jerusalem, and the mosque of Omar, as a secure and safe nesting-place; and numbers of swallows continually skim round its domes, while the swifts in swarms dash screaming through the streets of the city, and lodge at night in the crevices of the walls in greater numbers than I remember to have seen them elsewhere. Where there are no buildings, all kinds of Swallow build their nests in cliffs. The Swallow is so little molested in Palestine that I have often found its nest inside the little arches which shelter the wells, and where the eggs were within reach of any passing urchin.

The flight of the Swallow and Swift tribes ('As the swallow by flying') is proverbial for its rapidity. It is difficult to measure their speed; but that of the larger swifts has been put down at a moderate computation to reach eighty miles per hour; and though the swallows do not attain this marvellous rate, yet flocks of American barn-swallows on their migration have been known to leave Halifax, Nova Scotia, at sunset, for the South, and to reach the Islands of Bermuda, 800 miles due south, by sunrise the next morning.

Hezekiah compares his mourning and complaining in his sickness (Isa. xxxviii. 14) to the mournful, oft-repeated, garrulous note of the Swift. The garrulousness of the Swallow was a common proverbial expression amongst the ancient Greeks.

The regularity of the time of migration of the Swallow and the Swift, spoken of by Jeremiah, has been noticed in all countries, although some of the ancients, and even some moderns, have endeavoured to give currency to the fable that the swallows bury themselves in winter. Its coming marked the return of spring in Judæa, as well as in England, and was welcomed there no less than by the boys of Athens, who sang a familiar

ditty in its honour. As might have been expected from the difference in climate, all the migratory species are earlier in their arrival and later in their departure by a month or six weeks in Syria than in Britain.

All the birds of the Swallow tribe known in this country, and several other species besides, frequent the Holy Land. Our Common Swallow (*Hirundo rustica*) is very plentiful from March to November. There is a second species, the Oriental Chimney Swallow (*Hirundo cahirica*), which is also common; but, unlike the last species, many of this kind remain all the winter in the warmer parts of the country, as on the coast and in the Jordan valley. It only differs from the other in being chestnut-coloured instead of white underneath.

There is another very beautiful Swallow, the Rufous Swallow (*Hirundo rufula*), which is most abundant throughout all the country, returning in March. Its habits, note, and general appearance are like those of the other, but its under surface is pinkish with black streaks, and the lower part of the back a rich rufous. It builds in caves, rocks, and ruins a nest like that of the House-martin, but with a long, beautifully-formed entrance passage. The nest is attached to the roof, or the under-side of an overhanging rock, and the eggs are pure white. This bird is only found in Europe, in some parts of Greece, where it is rare.

Our House-martin and Sand-martin also visit Palestine in spring and summer; and, besides these, there are two other species of Swallow, the Crag Swallow (*Cotyle rupestris*) and the Marsh Swallow (*Cotyle palustris*), the former a south European, the latter an Abyssinian bird, which reside all the year in the Jordan valley, round the Dead Sea, and in the wadys of rivers. They are plain-coloured grey and ashen grey birds, with the short tail of the martins.

Of Swifts (the *sîs* or *sûs* of the Hebrew) there are three species, all very abundant: our Common Swift (*Cypselus apus*), which swarms everywhere in summer, and does not return before the beginning of April, when it suddenly appears in vast flocks. There is also the very large Alpine Swift (*Cypselus melba*), a bird of wide range, found from the Pyrenees to China and Japan, and in North Africa. The Cape species varies slightly from it. It comes back from the south much earlier than the other, as we

saw large flocks passing northwards over Jerusalem on the 12th of February. It rather avoids the towns, and resorts chiefly in large numbers together to the most inaccessible mountain gorges to breed. Its powers of flight are amazing, and it seeks its food at vast distances from its nightly roosting-places, being able to traverse the whole extent of Palestine in an hour or two.

Besides these, there is a third very interesting species, the Galilæan Swift (*Cypselus affinis*), very like the House-martin in general appearance and size. It resides all the year in the Jordan valley, where alone it is found, living in large communities, and has a pleasing note, a gentle and melodious wail, very different from the harsh scream of the other swifts. Its nests are very peculiar, being composed generally of straw and feathers agglutinated together by the birds' saliva, like those of the Edible Swallow of Eastern Asia. They are without any lining, attached to the under-side of an overhanging rock. It also sometimes takes possession of the nest of the Rufous Swallow for its purposes. The Galilæan Swift has a wide range, being found in India and Abyssinia.

It is very possible that under the term Swallow other birds were included by the Hebrews, as the Bee-eaters (*Merops*), of which three species occur in the Holy Land, and which are very swallow-like in their motions, note, and habits, though most brilliant in livery of orange, green, and blue, on close inspection.

Lapwing. Hoopoe. Heb. '*Dukipath*.'—The word occurs only in the catalogue of unclean birds forbidden as food in Lev. xi. 19 and Deut. xiv. 18. There can be no doubt that the *Hoopoe* is the bird denoted in these passages, as the Coptic and Syriac names for the Hoopoe are closely allied. It is a very remarkable bird in appearance, and cannot fail to attract notice wherever seen. Anatomically, also, it is a very peculiar species. It is a summer visitant to the Holy Land, and tolerably common in all parts of the country, though we found it most abundant in woods, and near rocky watercourses.

Few birds have had more absurd fables attached to them than this. The Arabs have a superstitious reverence for it, and, believing it to possess marvellous medicinal qualities, they call it 'the Doctor bird.' Its head is an indispensable ingredient in all their charms, and in the practice of witchcraft. They also believe that it listens

to whispers, and betrays secrets, and, what is far more important, that it has the power of detecting water, and of pointing out hidden wells and springs. These attributes have, doubtless, been suggested by the quaint and grotesque movements of its head and tall crest, which it erects in walking, and then, with a solemn portentous look, it bends its head down till the bill touches the ground, raising and depressing the crest at the same time. The Greeks and Romans had equally absurd superstitions respecting the Hoopoe.

It is considered a very filthy feeder, chiefly from its

HOOPOE. (*Upupa epops.*)

habit of resorting to dunghills, which it probes assiduously with its long delicate bill, in search for small insects. In Egypt it is much more abundant than in Palestine, resorting both to soft, marshy spots, and also remaining constantly about the towns. There it resides all the year round, while it leaves the latter country in winter, returning to Syria in the beginning of March. It was probably both from its filthy habits and resorts, as well as from the superstitious reverence in which it was held by the Egyptians, that it was especially enumerated among the unclean animals in the Mosaic law.

The Greek and Latin names (*Upupa*, ἔποψ) are derive

from its habit of *inspecting* the ground. Its English name is an imitation of its call-note, which it constantly repeats, like the note of the Cuckoo, but much more dolorous in tone. It builds either in holes of walls, or, more generally, in crevices of rocks. The ruined temples of Rabboth Ammon and Baalbek are among its favourite resorts. It is found in most of the warmer parts of the Old World, and has not unfrequently been obtained in England. Its plumage is of a light russet colour, the wings and tail black with many broad white bars, and its crest extending over the whole head, nearly two inches long, with black tips. It is about the size of a thrush.

Cuckoo.—The translation of the Hebrew word *shachaph* in our version. It only occurs in the list of unclean birds in Lev. xi. 16, Deut. xiv. 15. The derivation of the word is from a root signifying to be lean or slender; but we have no clue to the exact bird signified. The Arabic name of the Cuckoo is the same as our own. There are two species of Cuckoo which visit Palestine in the summer—our own Common Cuckoo (*Cuculus canorus*), and another, still more common there, the Great Spotted Cuckoo (*Oxylophus glandarius*). The curious parasitic habits of the Cuckoo in laying its eggs in the nests of other birds are well known. The Great Spotted Cuckoo, a much larger bird, eludes the maternal duties in the same manner, but deposits its eggs, which are of the same colour as those of the Magpie or Rook, and as large as the former, in the nests of the Hooded Crow, Raven, Jackdaw, or Magpie, generally the former. We cannot but admire the provision by which its eggs are counterfeits in appearance of those of the birds in whose nest they are deposited. As is well known, the eggs of our Cuckoo, most exceptionally small for the bird's size, resemble the Lark's, but are smaller.

Many commentators have endeavoured to show that the Hebrew *shachaph* denotes the Petrel or Shearwater, of which there are several kinds common on the coast of Egypt and Syria, and which are exposed for sale as food in the markets. As these sea-fowl are not elsewhere mentioned, and from their subsisting on fish would naturally be inhibited as food, there is some probability in the conjecture. Besides the Storm Petrel, which is rare, and too small to have been noticed as food, the

Great Shearwater (*Puffinus cinereus*) and the Manx Shearwater (*Puffinus anglorum*) abound in the Eastern Mediterranean, skimming along the coasts in long lines of many hundreds. From their restless habits and dark sombre plumage, they are believed by the Moslems to be tenanted by the souls of the condemned. Besides these there are many species of Sea-gull, common both on the coasts and on the Sea of Galilee, especially the Great Eagle Gull (*Larus ichthyaëtus*), the largest and most beautiful of all the gulls; the Herring Gull (*L. argentatus*); Black-backed Gull (*L. fuscus*); Common Gull (*L. canus*); Black-headed Gull (*L. ridibundus*), and several others.

Dove-Pigeon. Heb. '*Yonah.*'—Turtle. Heb. '*Tor.*'—Turtle-dove. Heb. *Tor-yonah.*

No bird is more frequently mentioned in Scripture, and no bird holds a place of more hallowed interest in Bible natural history, whether in the Old or New Testaments. The Dove is mentioned more than fifty times in the sacred writings; and we see that the Hebrews, while they distinguished the Pigeon or Dove from the Turtle-dove, were perfectly aware of their natural affinity. The first mention of the Dove is in Gen. viii. 8–12, when Noah three times sent out a Dove from the ark as the waters began to abate. On the first occasion, finding no resting-place, it soon returned; seven days afterwards, when sent forth, it returned with the olive-leaf in its mouth, harbinger of good, for the tops of the trees were uncovered; and on the third time it returned no more.

Next we find it, long before the giving of the law, used in sacrifice by Abram, when the Lord said to him, "Take me an heifer of three years old, and a she-goat of three years old, and a ram of three years old, and a turtle-dove and a young pigeon" (Gen. xv. 9).

The Pigeon and Turtle-dove were the only birds enjoined to be offered in sacrifice by the law of Moses. In almost every case they were permitted as a substitute for those who were too poor to provide a kid or lamb, and were admissible either as burnt, sin, or trespass offerings. They are enjoined for burnt offerings Lev. i. 15; for the trespass offering by the poor, "two turtle-doves, or two young pigeons, one for a sin offering, and the other for a burnt offering" (Lev. v. 7); for the purification of the leper, "two turtle-doves, or two

young pigeons, such as he is able to get; the one shall be a sin offering, and the other a burnt offering" (ch. xiv. 22). And so for ordinary purification (ch. xv. 14, 29). For the purification of the Nazarite, who had been accidentally defiled, two turtles, or two young pigeons, were specially enjoined (Numb. vi. 10). And in the case of the purification of women after childbirth, "if she be not able to bring a lamb, then she shall bring two turtles, or two young pigeons" (Lev. xii. 8); as was done by the mother of our Lord. "When the days of her purification according to the law of Moses were accomplished, they brought him to Jerusalem, to present him to the Lord; . . . and to offer a sacrifice according to that which is said in the law of the Lord, A pair of turtle-doves, or two young pigeons" (Luke ii. 22–24).

It was to meet the requirements of the offerers from distant parts of the country that the dealers had established their stalls for the sale of doves within the very precincts of the temple itself, whence our Lord expelled them on two different occasions, in the beginning and at the close of His ministry (John ii. 14–16; Matt. xxi. 12).

The Pigeon was certainly the earliest domesticated bird of which we have any record—at least from the earliest times of which we have historical knowledge, it was retained by man in the same semi-domestic state in which it is still held in this country, as in the East. We have no evidence of any other bird being domesticated by the Jews in the Old Testament period—at least before the time of Solomon, who introduced peacocks, and very possibly other gallinaceous birds at the same time, from India. The Duck and Goose, reclaimed in colder climates from a very early date, are not much cultivated in Palestine, as the heat and drought render the climate unsuitable for their propagation, unless in very exceptional localities. But tame pigeons have always been reared to a great extent in the East. At this day, in Syria, the Pigeon is the invariable companion of man wherever he has a settled habitation: the village sheikh marks his wealth by the possession of a large separate dovecot, built of mud or brick and roofed over, filled with earthen pots with a wide mouth, each of which is the home of a pair of pigeons. The poorer people rear them in their houses;

and in the villages about Carmel there is a row of small, square pigeon-holes formed in the wall just under the roof opposite the door, each of which has a pair of tenants, who fly in and out over the heads of the family through the common door.

Not only are the common dovecot pigeons thus reared, but pigeon fanciers are more common in Syria than in England, and great pains are expended on the culture of the fancy sorts—Fantails, Trumpeters, Jacobins, and Owls, and especially the Black Carrier. Many of the fancy races are known to have had their origin in the East, another proof of the antiquity of their domestication there. The offering of two young pigeons must thus have been one within the reach of the poorest, and the offerer was accepted according to that he had, and not according to that he had not. The admission of a pair of turtle-doves was perhaps a still further concession to extreme poverty; for, unlike the Pigeon, the Turtle-dove, from its migratory habits and timid disposition, has never yet been kept in a state of free domestication, but, being extremely numerous, and resorting to gardens and olive-yards for nidification, its young might easily be found and captured even by those who did not possess pigeons. Again, the Turtle-dove is easily captured on the ground by snares, and many are thus taken at the present day in Palestine; but the Wild Pigeon is much more wary and difficult of approach.

But while the Turtle-dove is a migrant, and can only be obtained from spring to autumn, the Wild Pigeons, which abound in 'clouds' in the Holy Land, remain throughout the whole year; and not only so—they have young at all times, their food being always abundant. Consequently, at any time of the year when the Turtle-dove was unattainable, young Pigeons might be procured by a search among the rocks. There is also a force in the adjective 'young;' for while the old *Turtle-dove* could be trapped, it was hopeless, before the introduction of firearms, to secure the old *Pigeon*, and the offerer could only procure the young nestlings before they quitted the nest; and these, therefore, were expressly permitted in offering sacrifice.

Wild doves or pigeons, as well as tame ones, are repeatedly alluded to in Scripture. The prophet Isaiah, in describing the flocking of the Gentiles into the Church

of Christ in the latter days, inquires, "Who are these that fly as a cloud, and as the doves to their windows?" (Isa. lx. 8), where the illustration is taken from the dove-cot towers, with latticed openings ('windows') for the ingress of the pigeons, which still may be seen flying, literally 'like a cloud,' in the neighbourhood of all Eastern towns and villages.

The habits of the wild Rock Pigeon (*Columba livia*), the origin of the domestic races, which invariably selects

ROCK PIGEON. (*Columba livia.*)

the lofty cliffs and the deep ravines for its nesting and roosting places, and always avoids trees, or the neighbourhood of man, are referred to in the following passage: "O my dove, that art in the clefts of the rock, in the secret places of the stairs [*i.e.*, of the cliffs], let me see thy countenance, let me hear thy voice" (Cant. ii. 14). "O ye that dwell in Moab, leave the cities, and dwell in the rock, and be like the dove that maketh her nest in the sides of the hole's mouth" (Jer. xlviii. 28). And when describing the desolation of Israel, "They that escape of them shall escape, and shall be on

the mountains like doves of the valleys [*i.e.*, of the ravines or mountain gorges, '*wadys*'], all of them mourning every one for his iniquity" (Ez. vii. 16).

The myriads of rock-doves in Palestine are beyond computation, far exceeding even the clouds of domestic birds. Few countries are so admirably adapted for them, abounding, as the Holy Land does, in deep gorges or wadys, with precipitous cliffs of soft limestone, honeycombed in all directions by caves and fissures. Several of these gorges are named, from the multitude of pigeons they contain, 'Wady Hamam,' *i.e.*, Ravine of Pigeons. One of the most remarkable of these is the Wady Hamam, leading from the Plain of Gennesaret at the south-west, where are the famed robbers' caves, inhabited by thousands of rock-doves, whose swift flight and roosting-places far in the fissures render them secure from the attacks of the many hawks that share the caverns with them. They likewise swarm in the ravine of the Kelt by Jericho, in the sides of the Mount of Temptation (Quarantania), and in the Kedron. Above all, they people the recesses of the cliffs which shut in the Arnon and the Zerka in the land of Moab, as they did in the time of Jeremiah.

The Rock Pigeon of these districts is the same as the Common Rock-dove of Egypt (*Columba schimperi*), a species very like our own Wild Rock-dove, but slightly smaller, and with the lower part of the back uniformly dove-coloured, instead of white. On the coast, however, and in the colder highlands, the British species (*Columba livia*), which is plentiful in the north of Scotland, is the common bird. Neither bird migrates in Palestine, and we found the eggs and young at all times of the year. The other wild pigeons of Palestine are the Ring-dove or Wood Pigeon (*Columba palumbus*), which frequents the forests of Gilead in countless myriads in winter, and is also common on Carmel. It leaves the country for more northern climates in March. It is precisely the same as our own Wood Pigeon. The Stock-dove (*Columba œnas*), well known in the south-east of England, also visits Palestine in summer, but is not very numerous.

The power of flight possessed by the Pigeon tribe is well known, and none are more remarkable for it than the rock-doves. It is several times alluded to in Scrip-

ture: "Oh that I had wings like a dove, for then would I fly away, and be at rest" (Ps. lv. 6). "They shall tremble [Heb. hasten) as a bird out of Egypt, and as a dove out of the land of Assyria" (Hos. xi. 11). It is probably to the metallic lustre on the plumage, especially of the neck of this species, that the Psalmist makes reference: "Though ye have lien among the pots, yet shall ye be as the wings of a dove covered with silver, and her feathers with yellow gold" (Ps. lxviii.

WOOD PIGEON. (*Columba palumbus.*)

13), *i.e.*, with the gleam of gold. Some have interpreted this of the Dove's wings as the ensigns of some Eastern nations; but the allusion is rather to the play of colours on the wings of the Dove in sunshine, setting forth, not riches, but the peaceful, and at the same time splendid, condition enjoyed by Israel in the lap of peace.

Several of the scriptural allusions apply equally to the Pigeon and the Turtle-dove, such as those to the plaintive, mournful note, which, though distinct in each species, yet in all has a similar character. "I did mourn

as a dove" (Isa. xxxviii. 14). "We roar all like bears, and mourn sore like doves" (lix. 11). "Huzzab shall be led away captive, she shall be brought up, and her maids shall lead her as with the voice of doves, tabering upon their breasts" (Nah. ii. 7).

The Turtle-doves (*Turtur*), the Latin and English name being the same as the Hebrew, repeated and derived from their note, form a distinct division of the Pigeon family or *Columbidæ*. We have mentioned four species of Pigeons, strictly so called, found in Palestine; there are also three species of Turtle-dove. These are the Turtle-dove (*Turtur auritus*), the same which visits the south of England in summer; the Collared Turtle (*Turtur risorius*); and the Egyptian or Palm Turtle (*Turtur senegalensis*). Each of these is distinct in its habits and character.

COLLARED TURTLE. (*Turtur risorius.*)

The Collared Turtle, by far the largest species of the group, resides throughout the year in very large num-

bers by the springs and streams on the shores of the Dead Sea where there are trees. In the summer it spreads up the Jordan valley, and may often be met with in the woods of Tabor and the forests of Gilead. It is much larger and darker in hue than the domesticated variety kept in cages in England, and often called the Barbary Dove. Palestine appears to be almost the western limit of this dove, which abounds in India, but is not found in Egypt or in Europe, though it has been stated to have occurred on the Bosphorus. Its length is about thirteen inches, and its note a melancholy 'coo-coo-coo.'

The Palm Turtle (*Turtur senegalensis*) is more widely distributed in different parts of the country, but, excepting in the Plains of Jericho and Shittim and round the Dead Sea, is not very numerous. It resorts much to the gardens and enclosures at Jerusalem, and there are very many in the enclosure of the Temple area. I have seen the nest in the portico of a house in the city. Wherever it is found, it is a permanent resident. It is very familiar and confiding in man, and is never molested. Its natural resort is the palm-tree, and it inhabits the oases and palm-groves in North Africa and Arabia in vast numbers. Wherever the palm grows, whether wild or cultivated, there are two or three pairs of these birds in each tree, and I have found as many as six nests in a single tree together. At Jericho, where the palm is extinct, it swarms among the thorn or jujube trees. This dove may have supplied, to a considerable extent, the sacrifices required in the wilderness, for in such camps as that at Elim great numbers of them could always be procured. It is not very unlike our common Turtle-dove in note, but may easily be distinguished from it by its ruddy chestnut colour, its long tail, smaller size, and the absence of the chequered collar on the neck, instead of which its neck is dappled by dark feathers with a slight metallic lustre. Its length is ten inches, and its body very small.

But the Turtle-dove most abundant, and that to which, no doubt, the various scriptural passages refer, is our own Turtle-dove (*Turtur auritus*), which may often be seen during the summer months in the southern counties of England. Its return in spring is one of the most marked epochs in the ornithological calendar. "The turtle and

the crane and the swallow observe the time of their coming" (Jer. viii. 7). "For, lo, the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land" (Cant. ii. 11, 12). Search the glades and valleys even by sultry Jordan, at the end of March, and not a Turtle-dove is to be seen. Return in the second week in April, and clouds of doves are feeding on the clovers of the plain. They stock every tree and thicket. At every step they flutter up

TURTLE-DOVE. (*Turtur auritus.*)

from the herbage in front—they perch on every tree and bush—they overspread the whole face of the land. So universal, so simultaneous, so conspicuous their migration, that the prophet might well place the Turtle-dove at the head of those birds which 'observe the time of their coming.' While other songsters are heard chiefly in the morning, or only at intervals, the Turtle immediately on its arrival pours forth, from every garden, grove, and wooded hill, its melancholy yet soothing ditty, unceasingly from early dawn till sunset. It is from its plaintive and continuous note, doubtless,

that David, pouring forth his heart's sorrow to God, compares himself to a Turtle-dove. "O deliver not the soul of thy turtle-dove unto the multitude of the wicked" (Ps. lxxiv. 19).

From its fidelity to its mate, and its habit of pairing for life, among other reasons, the Dove was selected as a symbol of purity, and an appropriate offering by the ancient heathens as well as the Jews. Its amativeness is referred to in the Song of Solomon (Cant. ii. 14; vi. 9), and its gentle eye has supplied several comparisons. "Behold, thou art fair; thou hast doves' eyes within thy locks" (ch. i. 15; iv. 1). "His eyes are as the eyes of doves by the rivers of waters, washed with milk, and fitly set" (ch. v. 12)—alluding to the bright red skin round the dark eye of the Turtle.

Above all, its gentleness and innocence are taken by our blessed Lord as setting forth the Christian character. "Be ye therefore wise as serpents and harmless as doves" (Matt. x. 16). The same character rendered it the fitting emblem under which the appearance of the Holy Spirit is described when He appeared in a visible form at the Saviour's baptism, when "the heavens were opened unto him, and he saw the Spirit of God descending like a dove, and lighting upon him" (Matt. iii. 16).

The common Turtle-dove does not extend its range far east or west of the Mediterranean. It is more numerous in Palestine than in any other country where it is found; and, indeed, the Pigeon tribe generally abound there to a degree unknown in other countries. This is accounted for by the botanical character of that region, where the herbage principally consists of leguminous plants of the clover and allied species, the leaves of which supply the favourite food of most pigeons. Owing, therefore, to the luxuriant growth of the clovers and lucernes, there is no limit to the number of doves the Holy Land can maintain in spring and summer.

Fatted Fowls.—In the catalogue of the delicacies provided for the table of King Solomon, we find fatted fowls, '*barberim*.' The word does not occur elsewhere, and commentators are not agreed as to the particular bird here intended. There is no trace elsewhere of our domestic poultry having been known to the Jews in Old Testament times. Some have taken them for swans, which are still to be found occasionally in Palestine;

others for geese, others for guinea-fowls, which, being natives of Africa, might have been introduced by Solomon; while Josephus seems to have understood fish fatted in fish-ponds. Some commentators render the passage of 'capons.' There seems, however, no difficulty in accepting the ordinary rendering of 'fowls' as meaning our domestic poultry, since, as Solomon imported peacocks among many other Indian products, he may well have also introduced the common poultry from the same country.

Cock. Hen.—Unless in the mention of fatted fowl, spoken of above, our domestic poultry do not seem to have been known to the Jews before the Babylonian captivity. We have no indication given us of the period when they were first introduced into Syria.

At the time of the coming of our Lord, they were familiar and common, as we see by various allusions; *e.g.*, when the Saviour compares his tender love for the Jerusalem which knew him not to that of a hen for her brood "How often would I have gathered thy children together, as a hen doth gather her brood under her wings" (Luke xiii. 34).

Cock-crowing is spoken of as a definite period of the night in Mark xiii. 35: "Ye know not when the master of the house cometh, at even, or at midnight, or at the *cock-crowing*, or in the morning." The cock-crowing here spoken of is the second cock-crowing, about an hour before dawn. The first cock-crowing is at midnight. This enables us to explain the slight difference between the warning of our Lord to St. Peter as recorded by SS. Matthew and Mark: "This night before the cock crow thou shalt deny me thrice" (Matt. xxvi. 34). So also Luke xxii. 34, and John xiii. 38. St. Mark is more precise and accurate: "This day, even in this night, before the cock crow twice, thou shalt deny me thrice" (ch. xiv. 30). It is thus interpreted by Dean Alford: "The *first* cock-crowing is at midnight; but, inasmuch as few hear it,—when the word is used generally, we mean the *second* crowing, early in the morning, before dawn." Thus the meaning of all the evangelists is identical.

The habit of the Cocks in the East of crowing during the night at particular times has been noticed by many travellers. We were particularly struck by

this in Beyrout, where, during the first week of our stay there, we were regularly awakened three times every night by the sudden crowing of the Cocks on the roof of the hotel. Another writer observes: "It has often been remarked, in illustration of Scripture, that in the Eastern countries the cocks crow in the night, but the regularity with which they keep what may be called the watches has not been perhaps sufficiently noticed. I will, however, confine myself to one, and that is between eleven and twelve o'clock. I have often heard the cocks of Smyrna crowing in full chorus at that time, and with scarcely the variation of a minute. The second cock-crowing is between one and two o'clock. Therefore, when our Lord says, 'In this night, before the cock crow twice,' the allusion was clearly to these seasons."—*Arundell, Discoveries in Asia Minor.*

The Mishna states that Cocks were not kept at Jerusalem, for fear of their polluting the holy things. But this regulation, if it existed, could not apply to foreigners, of whom there were many in Jerusalem, and the Romans would certainly not have tolerated any restriction on a bird so much in vogue amongst them for sport as well as for food. The statement is, however, probably a fiction; for not only was the Cock *not* unclean, but the Rabbis mention an instance of a cock which was stoned by order of the Council for having caused the death of a child. The Jews at the present day keep poultry in great quantities, not only in their yards, but in their houses in Jerusalem, where they roost at night over their beds. Chickens and eggs form even a larger proportion of the animal food of the population in the East than in this country, and the rearing of poultry and eggs is the chief maintenance of widows and of the aged and infirm.

We have no certain knowledge when poultry were introduced into Syria. They were common in Rome from the earliest times, and can certainly be traced in Greece before the Persian war. The poet Pindar, who lived soon after the return from the Babylonish captivity, mentions the Cock, and the word Ἀλέκτωρ occurs in Homer as the name of a man, probably derived from the bird. Aristophanes calls it the Persian bird, and it was doubtless introduced to Greece through Persia, and probably at the same time or earlier into Palestine.

The original of our domestic poultry is traced to India or some of the islands of the Eastern Archipelago. It is most likely that several wild species have been crossed to produce our domestic breed. The *Gallus giganteus* of Malacca appears in our larger breeds, and the *Gallus bankiva* of Java in the little Bantam. The game fowl is hardly to be distinguished from one of the jungle fowls of continental India, *Gallus ferrugineus*, and this is probably the principal origin of our poultry. The common Jungle Fowl of Southern India (*Gallus sonnerattii*) is remarkable for the hackles on the neck and shoulders, terminating in orange tips like drops of sealing-wax, which peculiarity marks it as distinct from our tame bird. In India, poultry have been domesticated from the earliest times of which we have notice. But no representation of them appears on any of the Egyptian monuments. It may reasonably be supposed that Solomon, when he introduced the Peacock, could scarcely have omitted the Cock from the same country, where it was at least as well known and more easily domesticated.

Peacocks, Heb. *tuccîyim* (*Pavo cristatus* of naturalists), are mentioned among the precious and curious things imported by Solomon from Tarshish. "For the king had at sea a navy of Tharshish with the navy of Hiram: once in three years came the navy of Tharshish, bringing gold, and silver, ivory, and apes, and peacocks" (1 Kings x. 22); see also 2 Chron. ix. 21. In Job xxxix. 13 we read: "Gavest thou the goodly wings unto the peacocks?" where a different Hebrew word is used, which all commentators are agreed should be rendered 'ostriches.'

There is, however, no doubt about the correctness of the translation of *tuccîyim*, and the occurrence of the word, which is not Hebrew, has no little interest, as enabling us to decide with tolerable accuracy the Tarshish of Solomon. Some old critics, maintaining the identity of this Tarshish of Solomon with the Phœnician *Tartessus* in Spain, suggested guinea-fowls, because those birds are called *Aves numidicæ*, forgetting that, in spite of its name, the guinea-fowl was never found within many hundred miles of Numidia. But this Tharshish or Ophir is clearly indicated as being in the region of the Malabar coast of India or in Ceylon, from the fact

that the Tamil name for the Peacock, there indigenous and abundant, is '*tokei*.' Sir E. Tennant observes: "It is very remarkable that the terms by which these articles (ivory, apes, and peacocks) are designated in the Hebrew Scriptures, are identical with the Tamil names by which some of them are called in Ceylon to the present day; *tukeyim* may be recognised in *tokei*, the modern name for these birds."—*Ceylon*, vol. ii. p. 102.

The importation by Solomon was probably the first introduction of the Peafowl to the Mediterranean countries, but their gorgeous plumage caused them soon to be cultivated, and we find them frequently alluded to in the Greek classics, who notice the contrast of their beauty and hideous voice, and also their vanity. The Romans considered them a great delicacy, and reared them largely for the table. The Greeks traced their introduction from Persia, where they were probably imported about the time of Solomon, or perhaps later. But we read that the soldiers of the army of Alexander were amazed at the beauty of the Peacock, when they found it in his Indian campaign, and that its destruction was forbidden among them.

In their native forests in India they are very abundant; 1200 or 1500 are stated to have been seen feeding within sight of one spot, while they covered the wood with their beautiful plumage. In many parts of Hindostan they are almost domesticated, entering villages and roosting on the huts, and are venerated by the natives in many districts. Many Hindoo temples have large flocks of them, and in some Hindoo states it is forbidden by law to shoot Peafowl. In Java, the Malay countries, and in Burmah, our Peafowl is replaced by another nearly-allied species of the same habits and general appearance (*Pavo muticus*).

PARTRIDGE, Heb. *kore*, or 'caller,' occurs only twice in Scripture. David remonstrates with Saul on his persecution of him: "The king of Israel is come out to seek a flea, as when one doth hunt a partridge in the mountains" (1 Sam. xxvi. 20). And again, "As the partridge sitteth on eggs, and hatcheth them not: so he that getteth riches, and not by right, shall leave them in the midst of his days, and at his end shall be a fool" (Jer. xvii. 11).

In each of these passages there is a distinct reference to the use made of the bird by man. The various modes

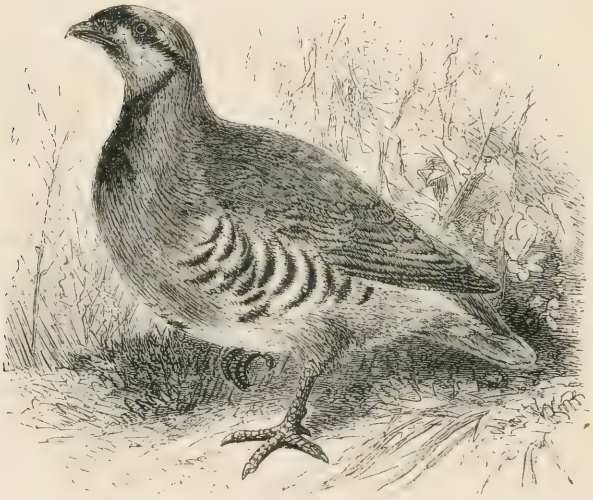
of hunting partridges have been already noticed, and David alludes to the mode of chase practised now as of old, when the Partridge continuously chased was at length, when fatigued, knocked down by sticks thrown along the ground. It must be remembered that both the species of Partridge common in the Holy Land, unlike our bird, endeavour to save themselves by running in preference to flight, unless when suddenly started; that they are not inhabitants of plains or corn-fields, but of rocky hill-sides, and are in the habit of concealing themselves among the stones, and rush with great speed up the hills, when they often afford a fair mark to the throwster.

On the passage in Jeremiah many ingenious glosses have been proposed, some of them wide of the facts. It has been asserted that the Partridge steals the eggs of other birds and covers them herself, and hence the passage has been interpreted "gathereth young which she has not brought forth." But it is not the case that the Partridge steals the broods of others. The natural interpretation is the true one. The Partridge lays a very large number of eggs (I once took a nest of twenty-six in the wilderness of Judæa), but she has many enemies—man not the least destructive—who hunt for her nest, and rob her of her eggs. The eggs of the Partridge are sought for assiduously by the Arabs, and used for food. They are easily found, and the quantity destroyed annually is amazing. We had in one spring in Palestine about 800 eggs of the Greek Partridge (*Caccabis saxatilis*) brought to our camp, and were in the habit of using those that were fresh for omelettes daily. They were doubtless collected of old for the same purpose; and the meaning of the prophet is, that the man who enriches himself by unjust means shall have as little enjoyment of his ill-gotten wealth, but shall leave it as prematurely, as the Partridge which commences to sit, but is speedily robbed of her hopes of a brood.

The reference in Ecclus. xi. 30, "Like as a partridge taken and kept in a cage," has been already explained (p. 163) of the decoy bird so frequently used in the East.

The commonest Partridge of the Holy Land is the Chukar Partridge (*Caccabis chukar*), a bird somewhat

resembling our Red-legged Partridge in plumage, with the same richly-barred feathers on the flanks, and deep red legs and bill, but much larger, approaching the Pheasant in size, and very distinct in habits from our Grey Partridge. In every part of the hill country, whether wooded or bare, it abounds, and its ringing call-note in early morning echoes from cliff to cliff alike amidst the barrenness of the wilderness of Judæa, and in the glens of the forest of Carmel. The male birds will stand erect on some boulder, sending their cheery challenge to some rival across the wady, till, the moment

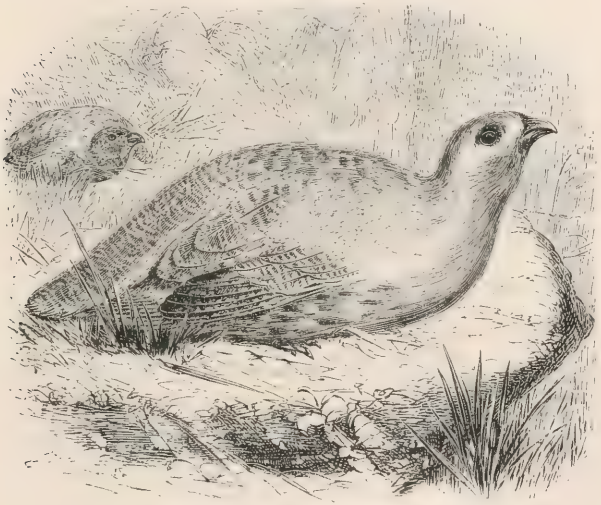


GREEK PARTRIDGE. (*Caccabis saxatilis.*)

they perceive themselves detected, they drop down from their throne, and scud up the hill faster than any dog, screening themselves from sight by any projecting rock as they run.

The coveys in autumn are very large; but the birds do not pack very much in winter, probably from the necessity of dispersing themselves to obtain food. In the wilder parts of Galilee the Greek Partridge is especially abundant. The Syrian bird is, I am inclined to believe, a distinct variety from any other. In coloura-

tion it closely resembles the Indian Chukor Partridge, but is much larger, exceeding even the specimens from continental Greece in size, and it has a deeper black gorget than the bird from other countries. Whether it be species or variety, the Syrian bird is undoubtedly the largest and the finest of all the true partridges. The Greek Partridge inhabits a wide range from east to west, extending from Galicia in the west of Spain, through the Pyrenees and Alps to Greece, Asia Minor, Persia, and Northern India—at least, the species of all these countries are very closely allied.



DESERT PARTRIDGE. (*Ammoperdix heyi.*)

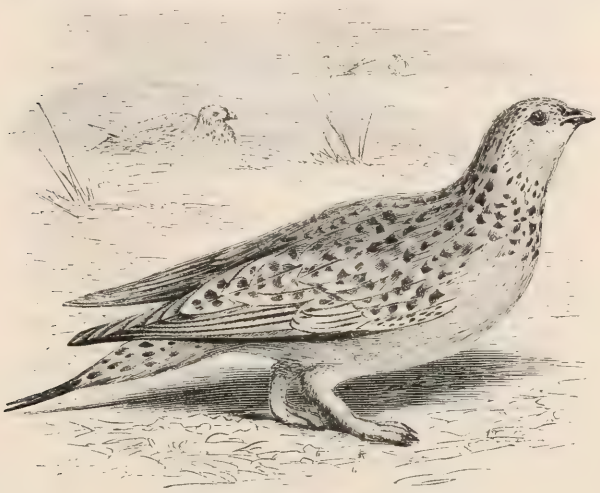
The true Partridge of the wilderness is another and very different bird (*Ammoperdix heyi*), decidedly smaller than the common English Partridge, and a bird of most delicate pencilling in its plumage. The bill and legs are a rich orange colour, the back finely mottled, a bright white spot behind the eye, and the flanks striped with purple and red-brown. It is peculiar, so far as we know, to Arabia Petræa, the basin of the Dead Sea, and its wadys, and to the eastern strip of the wilderness of Judæa, where it supplants in some degree the larger

species, though both are found in the same localities. In the neighbourhood of the Cave of Adullam it is very plentiful, and it often lays its beautiful cream-coloured eggs in holes in caves, as well as under the shelter of crevices of rock. It runs with wonderful agility up and down the cliffs, and its call-note is like that of the other partridge.

In the rich lowland plains, as of Gennesaret, Acre, and Phœnicia, the place of the Partridge is taken by the Francolin, a bird of the same family, well known in India as the Black Partridge, and formerly found in Southern Europe as far as Spain, but now quite extinct on this continent. The Francolin (*Francolinus vulgaris*) is as large and heavy as the Red Grouse, concealing itself in the dense herbage and growing corn of marshy plains, where its singular call can be heard, as on Gennesaret, resounding at day-break from every part of the plain, while not a bird can be seen. It is distinguished from the '*Hadjel*,' or Partridge, by the Arabs, but was doubtless included under '*korê*' by the Hebrews. The male bird is very beautiful, with deep black breast, flanks black, with large white spots, and a rich chestnut collar fringed with black and white spots.

With the partridges may also be included the Sand-Grouse (*Pterocles*), of which several species occur in great abundance in the more arid parts of the country. Some have supposed the Sand-Grouse to have been the 'Quail' of the Israelites in the wilderness; others that it was the Pelican of the wilderness—both, as it appears, needless conjectures. The Sand-Grouse are recognised by very distinct names by the Orientals. They are a peculiar group of game birds, in some respects approaching the pigeons, and inhabit the sandy regions of Africa and Asia in myriads. Two species are found so far north as Spain, and in the 'Landes' in the south of France. One of these (*Pterocles arenarius*), the Common Sand-Grouse, the *Khudry* of the Arabs, inhabits the wilderness of Judæa, and the other (*P. setarius*), the Pin-tailed Sand-Grouse, '*Kata*' of the Arabs, may be seen passing over the barer parts of the Jordan valley and the eastern desert by thousands at a time. It is a very beautifully-marked bird, and was first described by Russell in the 'Natural History of Aleppo' more than a century ago. Two other species, also common in Arabia and Egypt abound in

the wilderness of Judæa and near the Dead Sea—*P. exustus* and *P. senegalensis*—both birds remarkable for the delicate marking of their plumage, but, like all the



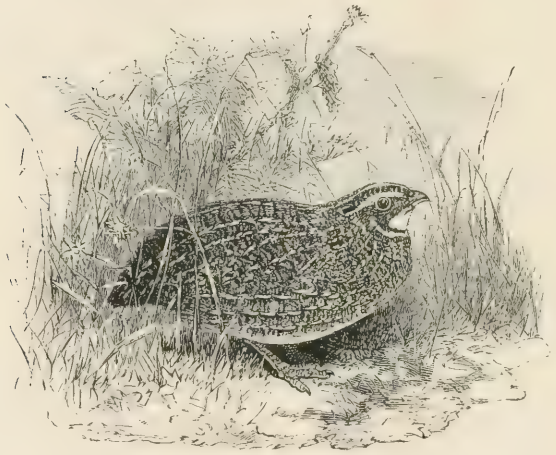
SAND-GROUSE. (*Pterocles senegalensis.*)

species of the genus, of a general sandy hue, which admirably assists them in escaping observation on the bare plains.

QUAILS, Heb. '*selav*' (*Coturnix vulgaris* of naturalists), are only mentioned in reference to the miraculous provision of these birds as food in the wilderness. "The Lord spake unto Moses, saying, I have heard the murmurings of the children of Israel: speak unto them, saying, At even ye shall eat flesh, and in the morning ye shall be filled with bread; and ye shall know that I am the Lord your God. And it came to pass that at even the quails came up, and covered the camp" (Ex. xvi. 11–13). Again, on a subsequent occasion, when the people murmured for flesh at Kibroth Hattaavah: "There went forth a wind from the Lord, and brought quails from the sea, and let them fall by the camp, as it were a day's journey on this side, and as it were a day's journey on the other side, round about the camp, and as it were two cubits high upon the face of the earth. And the people stood

up all that day, and all that night, and all the next day, and they gathered the quails: he that gathered least gathered ten homers" (Numb. xi. 31, 32). "Then the Lord rained flesh upon them as dust, and feathered fowls like as the sand of the sea" (Ps. lxxviii. 27). "The people asked, and he brought quails" (Ps. cv. 40).

Ingenious commentators have spared no pains in the attempt to prove the '*selav*' was not a quail, but some other creature they imagined more likely to be found in the desert. In spite of all etymology, and of the distinct allusion in the Psalms to *feathered* fowl, some have



QUAIL. (*Coturnix vulgaris.*)

suggested locusts, some flying fish; others, again, have conjectured the Sand-Grouse, '*Kata*,' or the desert Sheil-Drake, *Casarca rutila*, found about salt lakes, a most uneatable bird; while Dean Stanley has put forward the idea of 'large, red-legged cranes three feet high, with black and white wings measuring seven feet from tip to tip,' by which he undoubtedly means the White Stork, the innumerable flights of which literally darkened the sky, he states, when camping near the Wady Huderah.—*Sinai and Palestine*, p. 82.

It is undoubtedly true that vast flocks of all these three species of birds do visit the Sinaitic desert at the

time of migration; and I have also seen the Black Stork in almost as large numbers in the desert; while the Dean suggests the possibility of the Stork, on account of its standing three feet high, and thus explaining the statement of their being two cubits from the ground. But besides the fact that the flesh of these birds is abominable for food, while the Sand-Grouse is very dry and hard, and could scarcely have fully satisfied the hungry people, we have the clear proof of the identity of the Common Quail with the Hebrew '*selav*' in its Arabic name '*salwa*,' from a root signifying 'to be fat,'—very descriptive of the round, plump form and fat flesh of the Quail. The expression 'as it were two cubits high upon the face of the earth.' probably refers to the height at which the quails fly above the ground.

There are several expressions in the scriptural account which are borne out by observations of the habits of the Quail. At all times its flight is very low, just skimming the surface of the ground, and especially when fatigued it keeps close, never towering like the Partridge or Sand-Grouse. It migrates in vast flocks, and regularly crosses the Arabian desert, flying for the most part at night; and when the birds settle they are so utterly exhausted that they may be captured in any numbers by the hand. Being birds of weak flight, notwithstanding their migratory habits, they instinctively select the shortest sea passages, and avail themselves of any island as a halting-place. Thus in spring and autumn they are slaughtered in numbers on Malta and many of the Greek islands, which they quit in a day or two, very few being seen until the period of migration comes round again. They also fly with the wind, never facing it, like many other birds.

The period when they were brought to the camp of Israel was in spring, when on their northward migration from Africa. According to their well-known instinct, they would follow up the coast of the Red Sea till they came to its bifurcation by the Sinaitic Peninsula, and then, with a favouring wind, would cross at the narrow part, resting near the shore before proceeding. Accordingly we read that the wind brought them up from the sea, and that, keeping close to the ground, they fell, thick as rain, about the camp in the month of April, according to our calculation. Thus

the miracle consisted in the supply being brought to the tents of Israel by the special guidance of the Lord, in exact harmony with the known habits of the bird. The Israelites 'spread them' out, when they had taken them, before they were sufficiently refreshed to escape, 'round about the camp,' to dry them and prepare them for food, exactly as Herodotus tells us the Egyptians were in the habit of doing with quails, drying them in the sun (ii. 77).

Again, it was at even that they began to arrive, and by the morning the whole flock had settled. Thus throughout the Mediterranean the quails arrive at night, as the woodcocks do on our own east coast, in a similar state of exhaustion. I have myself found the ground in Algeria, in the month of April, covered with quails for an extent of many acres at daybreak, where on the preceding afternoon there had not been one. They were so fatigued that they scarcely moved till almost trodden upon; and, although hundreds were slaughtered, for two days they did not leave the district, till the wind veered, and they then as suddenly ventured northwards across the sea, leaving scarcely a straggler behind.

We noticed the same phenomenon, on a smaller scale, in Palestine, and I caught several in the Jordan valley with my hand; one was actually crushed by my horse's foot. A few remain there throughout the winter, but their numbers are suddenly reinforced at the end of March, when every patch of grass resounds with their well known peculiar call-note; and, though almost as unwilling to expose themselves to sight as the Corn-Crake, the sportsman may kill any number of them throughout the summer, so abundant are they. Doubtless, had we had a favourable opportunity, or been camped near their halting-ground, we might have seen them in as vast flocks as have been described, for in one day they had overspread the face of the land.

These habits of the Quail have been noticed by writers of natural history in all ages from the time of Aristotle (*Hist. Anim.* viii. 14) and Pliny. Aristotle observes their habit of waiting for the wind, and also the fact mentioned above—that a few remain in warm localities through the winter. (They have been known occasionally, as in the year 1865, to remain in the

north-east of England.) Some idea of their numbers may be formed from the statement that 160,000 have been captured in a season on the little rock of Capri, near Naples, and that 100,000 have been taken near Nettuno in a single day. Pliny states that the quails have been known to alight on a vessel in the Mediterranean in such multitudes as to sink it. In India the quails move about in large flocks, not so much according to the seasons as for a supply of food. It is to be noted that the *Coturnix vulgaris* is the only migratory species of its kind.

We thus see, on careful comparison, how the most ancient of all historical works and natural history reflect attesting lights on each other.

The Quail has a vast geographical range, extending, without variation of species, from Ireland to Japan and China, and from Northern Europe to the Cape of Good Hope. Its note, when once heard, will be always recognised—'Peek-whit-whit!' rapidly repeated—and somewhat resembling the sound of some species of Locust. It is not gregarious during the breeding season, and rears large bevies of young, sometimes as many as sixteen in a brood. The eggs are handsome, blotched irregularly with rich umber brown. The bird is too well known to require description, and is considered the most delicate eating of all game.

OSTRICH (*Struthio camelus*) is mentioned in Scripture more frequently than would appear from the reading of our version. Three Hebrew words apply to it, which are otherwise translated in our text, though, generally, 'Ostrich' is supplied in the margin. The name by which it is most frequently expressed is '*ya'anah*' or '*bath haya'anah*,' *i.e.*, 'greediness,' or 'daughter of greediness' (or 'of shouting'). Our Bible reads 'owl,' excepting in Lam. iv. 3, where *ya'enim* is rightly rendered 'ostriches.' Another word, '*rânân*,' is applied to the Ostrich in Job xxxix. 13, where our translators have rendered it 'Peacock.' "Gavest thou the goodly wings unto the '*renânim*,'" where the Ostrich is undoubtedly intended [see PEACOCK], while the word translated 'Ostrich,' in the same verse, is '*notseh*,' the Hebrew for 'feathers.'

The first mention of the Ostrich in Scripture is in the list of unclean birds in Lev. xi. 16, Deut. xiv. 16, where our version reads 'the ow..' It was, as might be ex-

pected from his residence in the eastern desert, familiar to the patriarch Job, who refers to various points in its economy, some of them true, and others founded only on the popular beliefs which hold even to this day among Orientals. Thus, "I went mourning without the sun; I stood up and I cried in the congregation. I am a brother to dragons and a companion to [owls, marg.] ostriches" (Job xxx. 28, 29).

OSTRICH. (*Struthio camelus.*)

The cry of the Ostrich, which is often emitted at night, is a loud, dolorous, and stridulous sound, and in the stillness of the desert-plains may be heard at a great distance. Some have compared it to the roar of the lion, but to my own ear it sounded more like the hoarse lowing of an ox in pain. The note of the Ostrich during the day, or when feeding, is very different—a sort of hissing chuckle. It is the hoarse complaining cry by

night to which the patriarch compares his own sorrowing lamentations under the visitation of God. The same simile occurs in Micah i. 8: "I will wail and howl, I will go stripped and naked, I will make a wailing like the dragons and mourning as the [owls, marg.] ostriches."

In the reply of the Lord to Job, the habits of the Ostrich are thus set forth: "Gavest thou the goodly wings unto the [peacock] ostriches? or wings and feathers unto the ostrich (or, rather, 'it is a stork's wings and feathers')? which leaveth her eggs in the earth, and warmeth them in dust, and forgetteth that the foot may crush them, or that the wild beast may break them. She is hardened against her young ones, as though they were not hers: her labour is in vain without fear; because God hath deprived her of wisdom, neither hath he imparted to her understanding. What time she lifteth up herself on high, she scorneth the horse and his rider" (Job xxxix. 13–18). Here we find mention made of the beauty of its plumes, of its habit of leaving its eggs on the surface, of hatching them in the heat of the sand, of its desertion of its young, of its reputed stupidity, and of its extraordinary fleetness. The belief that the Ostrich neglected its young is used also as an illustration by Jeremiah: "Even the sea-monsters draw out the breast; they give suck to their young ones; the daughter of my people is become cruel, like the ostriches in the wilderness" (Lam. iv. 3).

The other passages in which the Ostrich is mentioned refer to its inhabiting the most desolate and lonely places. Of Babylon it is foretold, "Wild beasts of the desert shall lie there; and their houses shall be full of doleful creatures; and ostriches shall dwell there and satyrs shall dance there" (Isa. xiii. 21). Of Idumæa, "It shall be an habitation of dragons, and a court for ostriches" (ch. xxxiv. 13). Again of Babylon, "The wild beasts of the desert with the wild beasts of the islands shall dwell there, and the *ostriches* (A.V. 'owls') shall dwell therein: and it shall be no more inhabited for ever; neither shall it be dwelt in from generation to generation" (Jer. l. 39). In the prophecy of the universal extension of the Church in the latter days it is said, "I will even make a way in the wilderness and

rivers in the desert. The beast of the field shall honour me, the dragons and the *ostriches*" (Isa. xliii. 19, 20).

We may add a few words on the habits of the Ostrich, as they have been elucidated by modern observers. The beauty of its wing and tail feathers, which are as highly prized by the Bedouins for the decoration of tombs, and of the tents and spear-heads of their sheikhs, as they are for head-dresses among western nations, have caused its chase to be a favourite employment of all desert tribes, and the skins fetch very high prices in the native markets. The bird never approaches settled habitations, and very rarely cultivated land, though the corn of the Belka plains, east of Moab, sometimes may tempt it. It usually selects an open space, where it is safe from surprise, and by her fleetness "she scorneth the horse and his rider."

The capture of the Ostrich is the greatest feat of hunting to which the Arab sportsman aspires, and in richness of booty it ranks next to the plunder of a caravan. So wary is the bird, and so open are the vast plains over which it roams, that no ambuscades or artifices can be employed, and the vulgar resource of dogged perseverance is the only mode of pursuit. The horses to be employed undergo a long and painful training, abstinence from water and a diet of dry dates being considered the best means for strengthening their wind. The hunters set forth with small skins of water strapped under their horses' bellies, and a scanty allowance of food for four or five days, distributed judiciously about their saddles. The Ostrich generally lives in companies of from four to six individuals, which do not appear to be in the habit, under ordinary circumstances, of wandering more than twenty or thirty miles from their head-quarters. When descried, two or three of the hunters follow the herd at a gentle gallop, endeavouring merely to keep the birds in sight, without alarming them or driving them at full speed, when they would soon be lost to view. The rest of the pursuers leisurely proceed in a direction at right angles to the course which the ostriches have taken, knowing by experience their habit of running in a circle. Posted on the best look-out they can find, they await for hours the anticipated route of the game, calculating upon intersecting their path. If fortunate enough to detect

them, the relay sets upon the now fatigued flock, and frequently succeeds in running one or two down, though a horse or two generally falls exhausted in the pursuit.

The Ostrich, when once taken, offers no resistance beyond kicking out sideways. The flesh is eaten by the Arabs, and I have found it good and sweet. Its speed has been calculated at twenty-six miles an hour by Dr. Livingstone, and yet the South African Ostrich is smaller than the northern species; and I have myself, in the Sahara, measured its stride, when bounding at full speed, from twenty-two to twenty-eight feet. If Dr. Livingstone's calculation be at all correct, the speed of the Ostrich is unequalled by any other cursorial animal.

Some difficulties have been raised respecting the statement in the Book of Job of the Ostrich leaving its eggs on the ground, hatching them in the sand, and being cruel to its young. Now the Ostrich is polygamous, and several hens deposit their eggs in one place—a hole scraped in the sand. The eggs are then covered over, and left during the heat of the day, but in the colder regions at any rate, as in the Sahara, the birds sit regularly during the night, and until the sun has full power, the male also incubating. But the Ostrich lays an immense number of eggs, far more than are ever hatched, and round the covered eggs are to be found many dropped carelessly, as if she forgot that the frost might crack them, or the wild beast might break them. But most naturalists confirm the statement of the natives, that the eggs on the surface are left in order to afford sustenance to the newly-hatched chicks, which could not otherwise find food at first in these arid regions. The passage in Job speaks evidently of some eggs warmed in the dust, and others left on the ground.

I never but once found an Ostrich's nest, and then the complement of eggs was not completed. We had observed with our telescopes two birds standing for some time in one spot, and were induced to ride towards them. By great good fortune we detected their track as we crossed it, for the stride being so wide, and the step merely the round impression of the two toes, it is very difficult to follow its spoor. We traced these steps back to the spot where we had seen the birds standing, and which we identified by the sand being much trodden.

Two Arabs dismounting, began to dig with their hands, and presently brought up four fine fresh eggs, from the depth of about a foot under the warm sand. The eggs were excellent eating, like those of poultry.

The shells are applied to various uses by the natives, for drinking-cups, boxes, but especially for the embellishment of the mosques, where they are suspended in long rows, and for the decoration of graves, the eggs being embedded in mortar at the head and foot of each grave, or built, for a great man, into a sort of pyramid.

Though I did not myself see the eggs scattered on the surface, yet all my Arab friends have assured me that it is the invariable habit of the bird so to place many of them, and that far more are laid than are ever incubated. It is from this habit most probably that the want of parental instinct is laid to the charge of the Ostrich; at the same time, when surprised by man with the young before they are able to run, the parent bird scuds off alone, and leaves its offspring to their fate. To do otherwise would be a self-sacrifice, as it is aware of its inability to defend itself or its poults, and on the open desert it cannot, like other cursorial birds, mislead the pursuer, or conceal its brood in herbage.

Stupidity is universally ascribed to the Ostrich by the Arabs: "God hath deprived her of wisdom, neither hath he imparted to her understanding." In some respects this is accurate, for, when surprised, it will often take the very course that ensures its capture. It generally runs to windward, and, when approached on that side, will sometimes come within shot. Thus, in a valley open at both ends, if the hunters make a feint of blocking the windward entrance, the Ostrich, instead of making for the opposite end, will endeavour to rush past them, and is often captured or speared, as it never turns from the course it has once taken. In the open, however, as we have seen, it is sagacious as well as wary.

The Arabs also consider it stupid, from the readiness with which it will swallow stones, nails, bullets, or any other hard and indigestible substance, and, in short, they give five proofs of its stupidity, which are enumerated by Bochart. Dr. Shaw adds, that he has seen an Ostrich swallow bullets hot from the mould, and I have, to my cost, known one swallow a pocket-knife and a buckle. It no doubt seizes hard substances to aid its gizzard in

digesting its food, which consists, whenever it can obtain them, principally of date stones, the hardest of all vegetable substances. Yet it deserves, on the whole, the Arab reproach, "stupid as an ostrich," though the crowning accusation, that it hides its head in the sand, and fancies no one can see it, however popular and widespread, is an undeserved calumny.

The plumage of the male Ostrich is a brilliant contrast of black and white, the precious plumes of the wings and tail being spotless white. The general colour of the female and young birds is dusky grey; but in the young the neck is bare, in the adult covered with short feathers. When captured young, the Ostrich is easily domesticated, and I have frequently seen them kept by Arabs, as free as the goats and camels, living with the other animals, and showing no disposition to escape. In some of the villages they are a sort of public property, and live in the bazaar, levying contributions for themselves from the fruit-stalls.

The South African species differs slightly from that of the north. The northern bird extends across all Africa, from Senegambia eastward, and into Arabia and Mesopotamia. It formerly reached as far as the sandy Plains of Sindh, in Western India, but is now extinct there. It approaches Palestine on the south-east, and I possess a skin which was obtained on the Belka, close behind the hills of Moab. But it is now much more rare than formerly.

CRANE.—The word occurs twice in our version, "Like a crane or a swallow, so did I chatter" (Isa. xxxviii. 14). "The turtle and the crane and the swallow observe the time of their coming" (Jer. viii. 7). In both passages it appears certain that our translators have interchanged the words, and that for 'Crane and Swallow' we should read 'Swift (*sîs*) or Crane (*'âgûr*).' [See SWALLOW.] In neither passage, however, is the meaning affected by the correction.

Two facts are referred to respecting the Crane — its loud voice, and its migratory instinct. The Crane (*Grus cinerea*) is well known in the Holy Land, and is, next to the Ostrich, the largest bird in the country. It only visits the cultivated region at the time of its spring migration, when a few pairs remain in the marshy plains, as by the waters of Merom, but the

greater number pass onwards to the north. In the southern wilderness, south of Beersheba, it resorts in immense flocks to certain favourite roosting-places during the winter. The clouds of these enormous birds, four feet high, and many eight feet from wing to wing, quite darkened the air towards evening. Their roosting-place was marked like some resort of sea-fowl—a gently-

CRANE. (*Grus cinerea.*)

sloping isolated knoll, where no ambush was possible, and where they could keep a good look-out on all sides. Their whooping and trumpeting enlivened the watches of the night, and till dawn we could hear the flocks passing over-head on their way to their quarters close by. The note is a very powerful clear trumpeting, not chattering, and by the Arabs is called 'bellowing.'

In corroboration of my own observations, I have received the following interesting notes from the Rev. F. W.

Holland, on the migration of the Crane in the wilderness of Sinai. "On March 22, when about twelve miles south of Tor, we saw an immense flock of cranes crossing the Red Sea from Africa. The line appeared to stretch across the whole breadth of the sea. Five days afterwards we found a solitary one amongst the mountains, which did not attempt to fly, but stalked majestically on before our camels, quite regardless of a few revolver bullets whizzing close past him. At last an Arab boy gave chase, and, running him into a bush, soon caught him, and returned in triumph, holding him up by the tips of his wings. When released, he stalked on as unconcernedly as before, but when on the point of being caught again, the strange bird suddenly took wing, and after wheeling round several times, flew away over the mountains. On April 13, three days south of Beersheba, in the desert of the Tyh, another large flock of more than 2000 cranes passed over our heads, going north as the others. In the beginning of May I saw several smaller flocks crossing the same desert from Akabah to Suez. There were also a few birds stalking about the head of the Gulf of Akabah."

The Crane was formerly common in England in summer, but is long since extinct. It still annually visits Sweden, and is found about the Black and Caspian Seas, and visits India in winter. One of the Cranes of China and Japan very closely resembles the western species.

HERON, Heb. *anâphah*, occurs among the unclean birds in Lev. xi. 19, Deut. xiv. 18. The Common Heron (*Ardea cinerea*) is frequent in the Holy Land and in Egypt in all the marshy grounds, and by the banks of rivers. As the expression 'after her kind' is added, the prohibition was evidently generic, extending to all birds of the Heron kind, of which there are many species, at least seven in number, common in Palestine. The most abundant of these is the Buff-backed Heron (*Buphus russatus*), often called the White Ibis, of which immense flocks live and breed in the impenetrable swamps of the Huleh, the ancient Merom. The food of the Heron tribe is principally fish and reptiles, also water-rats and water-insects; the frogs, which abound in all marshes in warm climates, afford them a plentiful subsistence. Both the Common and Purple Herons (*A. cinerea* and *A. purpurea*),

the Egrets (*Egretta alba* and *E. garzetta*), and the Squacco Heron (*Buphus ralloïdes*), as well as the Buff-backed, may often be seen fishing by the Sea of Galilee, where, however, the Crane, though depicted in Raphael's famous cartoon, is rarely found.

The Herons have a world-wide range, being found in every climate excepting within the Arctic Circle, and

HERON. (*Ardea cinerea.*)

the species differ very slightly in the different hemispheres. Our Common Heron and the Purple Heron are found from Ireland to Japan, and as far south as Java and the Cape of Good Hope, and the range of the Egrets is almost as extensive, while the American species are very similar. In England, as is well known, the Herons breed generally in communities on the tops of lofty trees in parks. In Palestine, where trees are scarce,

they select the reeds and papyrus in the recesses of swamps.

Bittern. Heb. *kippód.*—The word occurs several times applied to a creature inhabiting waste and desert places. "I will also make it (Babylon) a possession for the bittern and pools of water" (Isa. xiv. 23). Against

BITTERN. (*Botaurus stellaris.*)

Idumæa it is denounced, "The cormorant and the bittern shall possess it" (xxxiv. 11). "He will make Nineveh a desolation . . . . both the cormorant and the bittern shall lodge in the upper lintels of it: their voice shall sing in the windows" (Zeph. ii. 13, 14). Some commentators have attempted to explain the Hebrew as signifying the Hedgehog, from a fancied resemblance to its Arabic name '*kunfod*.' But the Hedgehog or the Por-

cupine never resort to marshy places, nor are they characteristic of ruins. Neither of them would meet any of the requirements of the sacred text. The Bittern (*Botaurus stellaris*) is far more probably the creature intended by the prophets. It is strictly an inhabitant of pools of water, a haunter of desolate places, and remarkably shy of any proximity to man. Nineveh itself was to be made dry like a wilderness, but there were and are many reedy marshes on the Tigris and close by it; and when the city was desolated, the Bittern would take up its abode in these, and its loud booming would be heard by night among the ruins. As a matter of fact, the Bittern is very abundant in these swamps of the Tigris, and in all the marshy grounds of Syria; and its strange booming note, disturbing the stillness of the night, gives an idea of desolation which nothing but the wail of the Hyæna can equal. The Bittern was once familiar in the fen districts of England, but now only a few stragglers are occasionally found. Drainage and cultivation have completely expelled it.

The Bittern belongs to the Heron tribe. It is two and a half feet long. Its plumage is uniformly buff, mottled with black and chestnut. In its long beak, legs, feet, and food, it resembles the Herons. It is found throughout all Europe, Asia, and Africa, and the species of Australia and America differ very slightly from our own. Unlike the Herons, it is not gregarious, but eschews the society even of its own species, and is very rarely seen, concealing itself among the rushes in the solitudes of the swamp, where it waits for the frogs, which are its favourite food.

Stork. Heb. *chasidah* (*Ciconia alba*).—The Hebrew name is derived from a root signifying 'kindness,' from the devoted maternal and filial affection of which the Stork has, in all ages, been held to be the type and emblem. This maternal instinct, implied in the Hebrew name, is repeatedly noticed by Greek and Latin authors, who believed, further, that the young repaid the care of their parents by tending them in old age, and, contrary to the habits of all other animals, recognised them through life. Though, certainly, we have no proof of this rather pleasing conceit, the devotion of the old birds to their offspring is very strongly displayed, and has been corroborated by modern observation. The

Stork has a very strong attachment to locality, and nothing but unremitting persecution can drive them from a spot which has once been selected for a nest. Year after year—indeed, generation after generation—a pair of birds return every spring to the same place, and either rebuild or thoroughly repair the old nest. If any accident happen to one of the pair, its place is

STORK. (*Ciconia alba.*)

speedily supplied, and the succession of tenants maintained. The only instance of a breeding-place being deserted which ever fell under my own observation was under curious circumstances. On the highest point of a large mass of ruin at Rabbath Ammon, were the remains of a deserted pile of sticks, an old stork's nest. One of the birds had got its leg entangled and broken in a chink of the ruin, where it had perished miserably,

and its gaunt skeleton, with the pinion feathers still remaining on the wing bones, swayed to and fro suspended in mid-air, and had effectually scared all its fellows from the spot.

In almost every country of the Old World, the Stork is a welcome and cherished visitor, not only from its character, but from the services it renders to man, by the destruction of reptiles, and by its activity in the removal of offal and garbage. On account of the uncleanly nature of its food it is placed in the catalogue of birds forbidden to be eaten, in Lev. xi. 19, Deut. xiv. 18. Its flesh is very rank and black.

The periodical return of the Stork is noticed in Jer. viii. 7: "Yea, the stork in the heaven knoweth her appointed times; and the turtle and the crane and the swallow observe the time of their coming; but my people know not the judgment of the Lord." There is peculiar force in the words, 'the stork *in the heaven*,' for, unlike most other emigrants, the Stork voyages by day at a great height in the air, and the vast flocks cannot but attract the notice of the least observant. The multitudes which arrive, and the suddenness with which these huge birds distribute themselves over the whole face of the land, is in Palestine truly startling. In winter not one is to be seen. On the 24th of March, 1864, vast flocks suddenly appeared, steadily travelling northward, and leaving large detachments on every plain and hill. From that period till about the 4th of May, they kept possession of the whole land, except where the ground was utterly barren, abounding especially in any marshy plains. They did not congregate like rooks; but, like sheep or cattle scattered over a wide pasture, they systematically quartered every acre of the country, probably until they had cleared it of all the snakes, lizards, and frogs they could find, when either scarcity, or the increasing heat of summer, reminded them of their northern homes, and they proceeded as suddenly as they had arrived, leaving behind them only a pair here and there at the established nesting-places. They were equally abundant on both sides of Jordan. On Mount Nebo they so covered the range, that at first, and until we had examined them through our telescopes, we took them for vast flocks of Moabite sheep pasturing.

In the year 1858, I had observed them arrive on the

22nd of March, just two days earlier. Their halt in Syria agrees with the time of their arrival in Russia, which is said to be the beginning of May. In Holland and Denmark they arrive about the middle of April. In various parts of Holland the nest of the Stork, built on the chimney-top, remains undisturbed for many succeeding years, and the owners return with unerring

STORK'S NEST.

sagacity to the well known spot. The joy which they manifest on again taking possession of their deserted dwelling, and the attachment which they testify towards their benevolent hosts, are familiar in the mouths of everyone.

In all countries where the Stork breeds it is protected; boxes are provided on the tops of the houses; and he considers himself a fortunate man whose roof the Stork selects. There is a well-authenticated account of

the devotion of a Stork, which, at the burning of the town of Delft, after repeated and unsuccessful attempts to carry off her young, chose rather to remain and perish with them than leave them to their fate. Well might the Romans call it *pia avis!*

In Job xxxix. 13, where, instead of '*wings*,' we should read 'stork,' there seems to be a contrast intended between the affection of the Stork and the unnatural indifference of the Ostrich. [See OSTRICH.]

The psalmist (Ps. civ. 17) states, "As for the stork, the fir trees are her house." There is no need here to explain the words of the Heron. The Heron, like the Stork, varies in her choice of a nesting-place, and in Palestine actually builds in marshes. The Stork selects the most convenient places near its food. In Western Europe it avails itself of the accommodation of man's dwellings, where it is secure. In the East it selects ruins wherever they are to be found, more especially or for the most part where there is water or neglected marsh in their neighbourhood. But where neither houses nor ruins occur, it selects any trees tall and strong enough to provide a firm platform for its huge nest, and for this purpose none are more convenient than the fir tree. Every writer on the subject has mentioned the Stork building upon trees in Denmark, Sweden, Germany, and France, and doubtless in the days of the psalmist, when trees were more plentiful and towns were scarce, this habit was yet more noticeable; just as swallows and martins in the East build in cliffs and caves, as they must have done in the West before man provided them with eaves and chimneys. The instinct of the Stork is to occupy the highest and most isolated platform it can select for security.

The beauty and power of the Stork's wings are seized on as an illustration by Zechariah: "The wind was in their wings: for they had wings like the wings of a stork" (ch. v. 9). The black pinions of the Stork suddenly expanded from their white body have a striking effect, having a spread of nearly seven feet: and the bird on the wing showing its long bright-red bill, and steering itself by its long red legs, stretched out far behind its tail, is a noble sight. The Stork has no organs of voice, and the only sound it emits is caused by the sharp and rapid snapping of its bill, like the rattle of castanets.

Besides the White Stork, another species, the Black Stork (*Ciconia nigra*) is common in some parts of Palestine. Excepting in the back and neck being black instead of white, and its being slightly smaller, it is very like the other, but differs widely in habits, preferring the deserts, shunning the society of man, and living gregariously in flocks like the herons. It breeds in trees, generally in the most secluded forests. I have seen it standing patiently in the shallows of the Dead Sea, where fish are brought down by the streams, and speedily poisoned in the mineral water, affording it an easy prey. It is also migratory, and visits the North of Europe. In Denmark it builds in the woods on the tops of trees, whence I have had its eggs procured. In the treeless districts of the Danube, it makes its nest in caves in the cliffs.

The White Stork is occasionally shot in England, where, now extirpated, in former ages it was a regular visitant. It has also been nearly extirpated in Greece, where the Christians have not the reverence for it which is maintained by the Turks. Before the War of Independence it was as common in Greece as in the neighbouring countries. The African Arabs call it the Marabout bird, or Prophet's bird, and a similar name is given to a species of Stork by the Hindoos. Both species of Stork are found in Europe, North Africa, and Asia as far as North China.

Unlike the young of most other wading birds, those of the Heron and Stork tribes are helpless for a long period after they are hatched.

SWAN.—Among the list of unclean birds in Lev. xi. 18, Deut. xiv. 18, occurs the word *tinshemeth*, rendered 'Swan' in our version. In the Septuagint and other versions, it is translated *Porphyrio*, or *Ibis*. It is scarcely probable that the Swan was intended by Moses. Though both the Mute and Whistling Swans have been occasionally found in Egypt, yet they are very rare (I obtained a single Whistling Swan at the Pools of Solomon). There is, moreover, no reason for making the Swan unclean.

It is far more probable that the old versions are right, and that either the Purple Gallinule (*Porphyrio antiquorum*) or the Sacred Ibis (*Ibis religiosa*), both of them necessarily familiar to the Israelites in Egypt, are intended. There was every reason for classing the Ibis among unclean

birds, from its connection with Egyptian idolatry, as well as from its unclean feeding. The Sacred Ibis, though so abundant in the mummy form in all the places of Egyptian sepulture, and so frequently depicted on their monuments, appears now to be extinct on the Lower Nile, and the traveller must go far into Abyssinia before he sees it. Neither does it now occur in Palestine. It is a very remarkable bird, in general form like our

SACRED IBIS. (*Ibis religiosa.*)

Curlew, but much larger, with snow-white body, long, naked, black neck, for the purpose of searching in the mud, and beautiful black plumes of metallic lustre at the extremity of its upper wing coverts. Other species of Ibis are also found in the East.

The Purple Gallinule is still common on the Nile and in the marshes of the Holy Land. It is a giant water-hen, as large as a duck, with rich dark-blue plumage and brilliant red beak and legs. It is an omnivorous feeder,

and from the miscellaneous character of its food might reasonably find a place in the catalogue of unclean birds.

PELICAN. Heb. *kâath*, named among the unclean birds in Lev. xi. 18, Deut. xiv. 17.—The psalmist in his affliction compares himself to "a pelican in the wilderness" (Ps. cii. 6). And in the prophetic description of the desolation of Edom, it is said that "the cormorant (*kâath*) and the bittern shall possess it" (Isa. xxxiv. 11); and of Nineveh, "Both the cormorant (*kâath*) and the bittern shall lodge in the upper lintels of it" (Zeph. ii. 14), where the margin in both passages rightly reads 'pelican.'

The name *kâath*, meaning 'to vomit,' was applied to the Pelican from its habit of storing great quantities of fish in the capacious pouch under its lower mandible, and then disgorging them to feed its young, which it does by pressing the bill against its breast. From this habit also arose the fable of its feeding its young with its blood, a tale also corroborated by the red tip at the end of its beak; and hence, too, its application in mediæval ecclesiastical emblems to the feeding of the Christian Church. It also disgorges its store to enable it to rise for flight when suddenly alarmed. The comparison by the psalmist of himself to the Pelican in the wilderness is suggested probably by the melancholy attitude of the bird, as, after gorging itself, it sits for hours or even days with its bill resting on its breast.

Some difficulties have been raised respecting the expression, 'pelican of the wilderness,' because it is a sea-bird. But the 'wilderness' does not necessarily imply only barren, sandy spots, destitute of water. The idea is simply that of a wide, open, uncultivated space, bare of herbage or not, as the case may be. And as a matter of fact, the Pelican is in the habit of resorting to such places after feeding. Thus it breeds in the great sandy wastes near the mouths of the Danube. I have myself twice met with the Pelican inland in Palestine, and Dr. Thomson assures me he has obtained it by the Waters of Merom, and seen it by the Sea of Galilee.

There are two species of Pelican found on the coasts of Syria—*Pelicanus onocrotalus*, the White Pelican, and *P. crispus*, the Dalmatian Pelican, both birds of enormous size, about six feet long, and the spread of the wings reaching over twelve feet. Their numbers in

the Levant have very much decreased within historic times.

Cormorant, Heb. *shalak* (*Phalacrocorax carbo*), is only mentioned in the list of unclean birds in Lev. xi. 17, Deut. xiv. 17, as in the other passages where the word occurs in our version it stands for the Pelican [see above]. The Cormorant is, however, very closely allied to the Pelican, being a group of the same family, so that our translators were not far amiss. There is some doubt

CORMORANT. (*Phalacrocorax carbo.*)

as to the exact bird intended by '*shalak*,' some suggesting the Gannet (*Sula bassana*), another species of the same family, very rarely found in the Levant; others the Tern or Sea-swallow, of which many species frequent the Nile, the coasts and inland seas of Palestine; and others the Skuas, or Black Gulls, which, however, are strictly northern birds. The Hebrew word denotes some *plunging* bird, which the Cormorant certainly is. The Common Cormorant is very common on the coast, and comes up the Kishon, visiting also the Sea of Galilee; and is likewise abundant on the Jordan as in

the Nile. Another much smaller species, the Pygmy Cormorant (*P. pygmæus*), we also found on the Kishon and the Litany. The Cormorant is too well known to require description.

SPECKLED BIRD occurs in Jer. xii. 9. The Hebrew, '*tzabua*' is considered the same as the Arabic '*ddubba*,' HYÆNA [which see].

CHAPTER IX.

Reptiles.

Reptiles, or 'creeping things,' are not mentioned as a collective group in Scripture, but are divided into the moving creatures of the sea, classed with the fishes (Gen. i. 20), and the creeping things of the land, mentioned along with mammalian quadrupeds, but distinct from them (Gen. i. 25; Lev. xi. 29, 30). It was long before the investigations of comparative anatomists enabled us to comprise in one great class animals so widely differing in form and habits, as the Tortoise, the Crocodile, the Serpent, and the Frog. One point of approximation between the Serpent and the Lizard is referred to in Leviticus, viz. the belly of the latter creeping or touching the ground, owing to the shortness of the legs and length of the body in most species.

The class Reptilia is generally divided into six orders, though naturalists are by no means agreed either as to the number or the limits of these orders. But for general convenience we may adopt the following, all of which contain species more or less directly referred to in Holy Scripture.

1. Testudinata.—The tortoises and turtles, or Chelonians, having their back-bone, ribs, and breast-bone welded together into a solid horny shield, within which the whole of the body is enclosed. 2. *Enaliosauria*, to which belong the gigantic fossil reptiles, the Ichthyosauri and Plesiosauri of our museums, perhaps referred to among the monsters of the deep in the records of creation, but all of which belong to past geological epochs. 3. *Loricata*, the crocodiles and alligators, named from the resemblance of their coat of peculiar hard scales to a coat of mail; and in many other characters very distinct from the lizards. 4. *Sauria*, or Lizard tribe. 5. *Ophidia*, or Serpents. 6. *Batrachia*, or *Amphibia*, containing the frogs, toads, newts, and salamanders, in all of which the heart has but one auricle, while in the other reptilia it has two. The

body is naked, and in the earlier period of their existence they breathe by gills, changing in some totally, in others partially, to respiration by lungs in their adult state. For these reasons some naturalists have excluded them from the class Reptilia.

Reptiles are very largely represented in the Holy Land, and of its lizards and serpents probably not a fourth part have yet been recorded, only forty-four species being at present on our lists as obtained, while very many others have been noticed, but not captured and preserved. The conformation and climate of the country are peculiarly favourable to this class of animal life. The limestone rocks and chalky hills afford the cover and the security, both in summer and winter, in which the Serpent tribe delight. The sandy downs and wilderness of Judæa are the natural home of the myriads of lizards which dart over the plains, and on the slightest alarm conceal themselves in the sand. The tropical heat and dry atmosphere of the Jordan valley are favourable to their reproduction to an extent only limited by the supply of food. We will proceed to enumerate the species mentioned in Scripture, in their natural order.

TORTOISE.—This is the rendering in Lev. xi. 29 for the Heb. *tzab*. There has been much question as to the animal intended. Bochart, with apparent reason, identifies the *tzab* with the Arabic *dhabb*, a large species of lizard, *Uromastix spinipes*, very common in the desert and sands of North Africa and Arabia. It is also well known in the Judæan wilderness, living in holes of the rocks or burrowing in the sand. It sometimes attains the length of two feet. Its most peculiar characteristic is its powerful spiny tail, broad and massive, and encircled with close rows of stout prickly scales. This is its weapon of defence, which it uses with effect against its assailant. Its colour is grass green, spotted with brown, but darker when irritated. It has a slow and awkward gait, turning its head from side to side with great caution as it walks. It rarely bites; but when it does so, nothing will induce it to relinquish its grasp. It feeds chiefly on beetles, but will attack larger animals, even chickens, when in confinement. I kept one tame for some months, and it was very docile, coming at my call, and sleeping in the sun during the day, supported

on its tail, with the nose and fore-legs leaning against the wall. The Arabs told me that it is a match for the Horned Cerastes, which often enters its holes, but soon has its vertebræ dislocated by the vigorous blows of the Dhabb's tail. The Dhabb is eaten by the Bedouin.

The Septuagint renders the Heb. *tzab* as 'the Land Crocodile,' or *Psammosaurus scincus*, but this appears to be represented by another Hebrew word. [See CHAMELEON.]

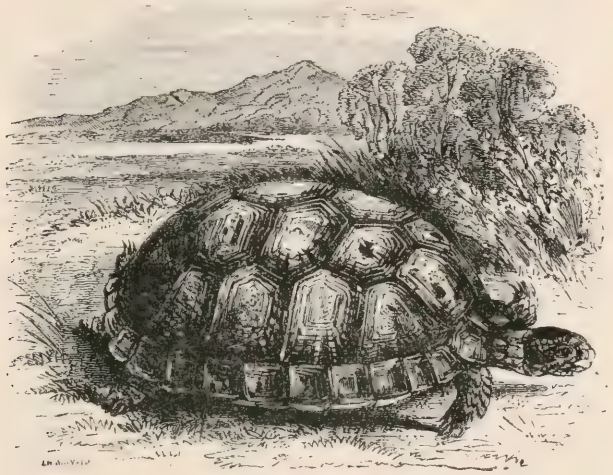
The Tortoise, however, is one of the commonest animals in the Holy Land. The Land Tortoise (*Testudo*

DHABB. (*Uromastix spinipes.*)

græca) is found everywhere in great abundance, creeping over the hills and plains in summer, and in the winter burying itself in shallow holes, which it scrapes usually under leaves at the root of a bush, or under a rock. It is the principal food of several birds of prey, as the Lämmer-Geier, and is cooked and eaten by the natives, who also use its eggs. These are round, covered with a hard calcareous shell, and about the size of a pigeon's egg. Another species, larger, and with the carapace flattened behind (*Testudo marginata*), I also procured on Mount Carmel.

The Water Tortoise (*Emys caspica*) is also very nume

rous in all the streams and marshes, and especially in Lake Huleh (Merom), secreting itself during winter in the mud, or in holes in the bank. Unlike the Land Tortoise, it is carnivorous, feeding on fish, frogs, and young birds, and has a very offensive smell, which is



LAND TORTOISE. (*Testudo græca.*)

particularly odious, and even terrifying to horses. Its eggs are oblong, and it deposits them in the ground, away from the water. It may at once be distinguished from the Land Tortoise by its flat carapace, and long tail and neck.

LEVIATHAN, Heb. *livyathan*, occurs five times in the Hebrew Scriptures. In one passage (Ps. civ. 25, 26), "This great and wide sea, wherein are things creeping innumerable, both small and great beasts. There go the ships: there is that leviathan, whom thou hast made to play therein." The name is evidently used generically of the great sea-monsters or cetaceans, for the 'great and wide sea' can only refer to the Mediterranean, not to any river as the Nile. There are many large creatures of the Whale tribe, as the Grampus and Mediterranean Rorqual, not uncommon there even now, and there can be no doubt that in earlier times these animals were more numerous there, both in species and individuals. [See WHALE.]

In all the other passages, the Crocodile (*Crocodilus vulgaris*) is undoubtedly specifically intended, and in one it is most accurately described. In Ps. lxxiv. 14, the power of the Lord, exercised in the deliverance of Israel out of Egypt, is compared to "breaking the heads of leviathan in pieces." And again, in the prophecy of Isaiah, "In that day the Lord with his sore and great and strong sword shall punish leviathan the piercing serpent, even leviathan that crooked serpent; and he shall stay the dragon that is in the sea" (ch. xxvii. 1). The

CROCODILE. (*Crocodilus vulgaris.*)

use of the word in Job iii. 8 is more difficult: "Let them curse it that curse the day, who are ready to raise up their *mourning*." [Heb. leviathan, as in the margin.] The probable interpretation is, "Let those be hired to curse the day of my birth, who are skilful enough to raise up even the crocodile from his watery home."

The whole of Job xli. is devoted to a description of the Crocodile under the name Leviathan, where he is described with marvellous fidelity. The difficulty of capturing it or taming it is set forth: "Canst thou draw out leviathan with a hook, or his tongue with a cord which thou lettest down? Canst thou put a hook into his nose? or

bore his jaw through with a thorn?" (as is done with fish.) "Will he make a covenant with thee? wilt thou take him for a servant for ever? wilt thou play with him as with a bird? or wilt thou bind him for thy maidens? . . . . Canst thou fill his skin with barbed irons? or his head with fish spears? . . . None is so fierce that dare stir him up." His vast size—"I will not conceal his parts, nor his power, nor his comely proportion." His formidable rows of teeth—"Who can open the doors of his face? His teeth are terrible round about." The plate-armour of his impervious scales—"His scales are his pride, shut up together as with a close seal. One is so near to another, that no air can come between them. They are joined one to another, they stick together, that they cannot be sundered. . . . The flakes of his flesh are joined together: they are firm in themselves; they cannot be moved. . . . The arrow cannot make him flee: sling stones are turned with him into stubble. Darts are counted as stubble: he laugheth at the shaking of a spear." His gleaming eyes—"By his neesings a light doth shine, and his eyes are like the eyelids of the morning." His violent snorting—"Out of his mouth go burning lamps, and sparks of fire leap out. Out of his nostrils goeth smoke, as out of a seething pot or caldron. His breath kindleth coals, and a flame goeth out of his mouth." And his immense strength—"In his neck remaineth strength. . . . When he raiseth up himself, the mighty are afraid. . . . The sword of him that layeth at him cannot hold: the spear, the dart, nor the habergeon. He esteemeth iron as straw, and brass as rotten wood."

The word 'dragon,' Heb. *tannin*, is in several passages used of the Crocodile, to symbolize the power of Egypt, of which this beast of the Nile was the type. "Art thou not it that hath cut Rahab, and wounded the *dragon?*" (Isa. li. 9.) "Behold, I am against thee, Pharaoh, king of Egypt, the great *dragon* that lieth in the midst of his rivers, which hath said, My river is mine own, and I have made it for myself" (Ez. xxix. 3). Again, "Thou art as a *whale* [marg. dragon, Heb. *tannin*] in the seas, and thou camest forth with thy rivers, and troubledst the waters with thy feet, and fouledst their rivers" (ch. xxxii. 2). The same word is also applied to Nebuchadnezzar: "He hath swallowed me up like a *dragon*"

[Heb. *tannin*] (Jer. li. 34). Though no crocodile or alligator is found on the Euphrates or Tigris at the present day, yet it is probable they formerly existed there, as they do still on all the other great rivers of Asia, but that they were extirpated by the population which so long existed on the banks of these rivers.

There may be a double reason for the Crocodile being taken as the symbol of Egypt, since among the monstrous idolatries of that people none was stranger than the adoration of the Crocodile. At Thebes, and on the banks of Lake Mœris, a young Crocodile was reared in the temple, adorned with rings and bracelets, fed carefully with sacred food, and reverenced with divine honours. At Ombi, a town a little below Syene, the Crocodile was an especial object of worship, and its mummies are still to be found in the adjacent catacombs. The inhabitants had an hereditary feud with Tentyra, lower down the river, in consequence of the Tentyrites being in the habit of hunting this animal.

On account either of the brightness of the Crocodile's eyes, or because it is the first part of the body exposed when the creature emerges from the water, it is the hieroglyphical symbol for sunrise.

There are many species of crocodiles, alligators, and gavials, all genera of the same order, found in the rivers and fresh waters of the warmer parts both of the Old and New Worlds and in Australia. But of all these, the Crocodile of the Nile (*Crocodilus vulgaris*) is the largest and most formidable. It is produced from an egg, the shape and size of that of a goose, of which thirty or upwards are deposited in sand by the bank of the river, and hatched by the sun's heat. The young grow rapidly at first, but more slowly afterwards, attaining the enormous length of thirty feet.

The Crocodile has a single row of teeth in each jaw, implanted in sockets, from which they are reproduced when lost or broken, while in lizards the teeth are anchylosed to the bone. It has no lips, so that the teeth present a formidable appearance. They propel themselves through the water by the tail, which is also a powerful weapon of attack, and when the beast is captured a stroke of the tail is more to be dreaded than the teeth. The whole head, back, and tail are covered with quadrangular horny plates or scales, which not only

protect the body, a rifle ball glancing off from them as from a rock, but also serve as ballast, enabling the creature to sink rapidly on being disturbed, by merely expelling the air from its lungs. Owing to the peculiar form of their vertebræ, they have great difficulty in turning the body rapidly, and the easiest way of escaping pursuit on land is by sudden turns during flight. The food of the Crocodile is entirely animal, consisting chiefly of fish, which they pursue with great speed. The ancients believed they could move the upper as well as the lower jaw. This, however, is not the case, though the lower jaw, being prolonged behind the skull, gives an appearance of mobility to the upper. Those individuals which inhabit inland waters which dry up in the hot season, bury themselves in the mud, and remain torpid under its crust till the return of the rains.

The Crocodile was much more abundant in Lower Egypt in ancient times than at present, and there is reason to believe that it was found in many other rivers where it is now extinct. We have good evidence of its existence at the present day in Palestine itself, in the marshes of the Zerka, or Crocodile River, which rises near Samaria, and flows through the Plain of Sharon. It is mentioned as existing there by Pliny and Strabo, and the traveller Pococke speaks of its capture in the last century. The Arabs of the neighbourhood are still familiar with it, and in 1872 brought one to me recently killed, nine feet long, of which I still possess the head and bones. Any person who knows these marshes will be well aware how difficult it would be to hunt them there. The existence of the Crocodile in the Holy Land, so near Arabia, may throw light on the familiarity with the beast evinced in the Book of Job, without implying that the knowledge of it was derived exclusively from Egypt. And if, as has with some reason been supposed, the land of Uz was on the Upper Tigris, Job might there equally have had personal knowledge of this creature.

As 'leviathan' is evidently sometimes used by the writers of the Hebrew Scriptures in no restricted sense, it may also, in such passages as "leviathan the piercing serpent," "leviathan the crooked serpent" (Isa. xxvii. 1), be applied also to the Great Python, or Rock Snake,

which, though now extinct in Egypt, was formerly known there, and is depicted on the monuments, being, as well as the Crocodile, an object of worship, and so used also to symbolize the Egyptian monarchy.

Chameleon, the translation of the Hebrew word *coach*, in Lev. xi. 30, where it is included among the unclean creeping things. There is no certainty as to the exact animal designated *coach*. The root signifies 'strength;' and the best critics refer it to another lizard, the largest and most powerful of the class—the Monitor. Of this there are two species common in Bible lands—the *Psammosaurus scincus*, or Land Monitor, *Waran-el-hard* of the Arabs, the 'Land Crocodile' of the ancients, attaining the length of four or five feet, with sharp-pointed teeth and a long muzzle. It is carnivorous, devouring small lizards, jerboas, and especially the eggs of the Crocodile, on which account it is highly prized in the countries where it is found. The Land Monitor is very common in the sandy parts of Egypt, in the Sinaitic Peninsula, and in the southern parts of Judæa. It has also been taken in the Jordan valley, and is eaten by the natives.

The Nilotic Monitor (*Hydrosaurus niloticus*), *Waran-el-bahr*, or Water Waran, of the Arabs, is yet more abundant in Egypt, and attains a length of five or six feet. It much resembles the former species, but has a high keel along the whole length of its tail, by which it may be at once distinguished, and is prettily spotted. It has the same habit of searching for Crocodiles' eggs, and was reverenced by the ancient Egyptians, on whose ornaments it is frequently found engraven. It is said to exist also in Palestine, but I have not met with it myself.

The Chameleon itself (*Chamæleo vulgaris*) is supposed to be intended by '*tinshemeth*,' the Hebrew word which, in Lev. xi. 30, is rendered 'mole' in our version, while another word stands for 'mole' elsewhere in Scripture. It is here given in the list of 'unclean things that creep upon the earth.' From the context it is pretty certain that some lizard is intended, and from the etymology 'to breathe' it is believed to be the Chameleon, which the ancients supposed to live upon air.

In its anatomy, appearance, and habits, the Chameleon is very different from any other lizard. It remains exclusively on trees, often suspended by its tail to the

extremity of a branch, whence it darts forth its long tongue, covered with a viscous fluid to entrap passing insects. Each foot is a grasping hand, by which it clings with great force to a branch, but it is almost helpless on the ground. The chief peculiarity of this lizard is the enormous size of the lungs (whence arose the fable that it lived on air), and these, when filled, render the animal semi-transparent. They have the faculty of changing colour more developed than in any other lizard, and this change is influenced, not by the bodies on which they happen to rest, but by the wants

CHAMELEON. (*Chamaleo vulgaris.*)

and passions of the animal. The structure of the eyes is very wonderful. They are so prominent that one-half of the ball projects out of the head, and not only can they be moved in any direction, but each has an independent action; one eye may be looking forwards, while with the other the animal examines an object behind it. The Chameleon is very common in Egypt and the Holy Land, especially in the Jordan valley. This species has a wide range, extending from Spain and Morocco to India and Ceylon.

Dragon.—The rendering in our version of two similar Hebrew words, but with apparently different meanings —'*tan*' and '*tannin*.' [For a frequent meaning of the

latter see LEVIATHAN.] '*Tan*' is used always in the plural, for some creature inhabiting desert places, frequently coupled with the Ostrich and wild beasts. "I am a brother to dragons, and a companion to ostriches" (Job xxx. 29). "The place of dragons" (Ps. xliv. 19). "An habitation of dragons, and a court for ostriches" (Isa. xxxiv. 13). So ch. xliii. 20. "The wild beasts of the islands shall cry in their desolate houses, and dragons in their pleasant palaces" (ch. xiii. 22). "Desolate and a den of dragons" (Jer. x. 22). So ch. ix. 11; xiv. 6; xlix. 33; li. 37. "I will make a wailing like the dragons, and mourning as the ostriches" (Mic. i. 8). "Dragon of the wilderness" (Mal. i. 3). In all these passages it is scarcely possible than any animal of the Serpent tribe can be intended, especially from the 'wailing' spoken of by Micah, and 'the snuffing up the wind' in Jer. xiv. 6. Most probably the Jackal, the mournful howl of which may constantly be heard among ruins and in the desert in the night, is the creature alluded to. [See JACKAL.]

The word '*tannin*,' on the contrary, is always used in a distinct sense, generally as an aquatic monster, and in several passages apparently synonymous with LEVIATHAN [which see], and expressing a creature with feet. In Gen. i. 21 it stands for the monsters of the deep, but in other passages for huge land reptiles: "The young lion and the dragon shalt thou trample under feet" (Ps. xci. 13). And for a deadly serpent: "Their wine is the poison of dragons, and the cruel venom of asps" (Deut. xxxii. 33). '*Tannin*' is the word translated 'serpent' in the account of the contest of Moses with the magicians (Ex. vii).

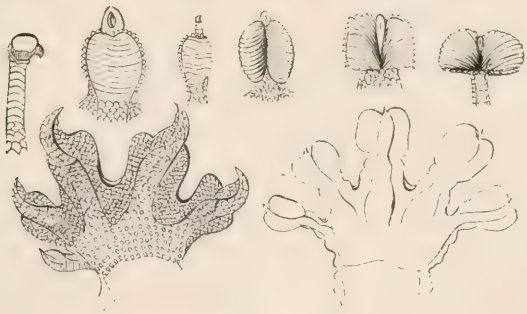
In the New Testament the word 'dragon' is used only metaphorically, as applied to Satan in the Revelations, and without any reference to any actually existing creature, but with a symbolical meaning.

Dragon-worship was common in the East, typifying usually the power of evil, or sometimes the powers of nature as distinct from God. The Dragon, a huge reptile, with enormous jaws and short legs, such as was represented in the dragon temples of old, and is now depicted on the imperial banners of China, was held to symbolize the union of gigantic power with subtility and malignity, and an enmity against the human race. The idea probably was founded on the tradition of the agency

of the Serpent in compassing the fall of man. Certainly dragon-worship was wide-spread, existing in Egypt, Babylonia (as is shown in the story of Bel and the Dragon), among the Celtic nations, and in the far east of India and China. Perhaps, too, its ancient prevalence in Greece was indicated by the myth of Apollo slaying the Python, supplanting serpent-worship, the worship of fraud and violence, by the adoration of wisdom.*

FERRET, Heb. *anâkah*, 'that which sighs or groans,' is named among the unclean creeping things in Lev. xi. 30. It can scarcely be the Ferret. The old Greek translation renders it 'the shrew-mouse;' the Rabbinical writers have interpreted it of the Hedgehog. It is much more probably a reptile, from its place in the Mosaic enumeration, and deriving its name from the mournful low cry or wail which many of the lizards, as the geckos, for example, continually utter.

Several geckos are found in the Holy Land, as well as in Egypt. The Common Gecko, or Fan-foot (*Ptyodactylus*



FEET OF GECKO.

gecko), is very common over the whole country, living among rocks, in ruins, or in houses, which it frequents habitually, running with rapidity up the walls, and even on the ceilings, which it is enabled to do by an extraordinary provision in the construction of its toes. These are provided with a bifid lamellated structure on the under side, by which they can adhere firmly to the smoothest surface, even when in an inverted position. They move without making the slightest sound, and

* See "Faber's Origin of Pagan Idolatry."

are nocturnal in their habits. They vary much in colour, some species being red, others brown, and some a bright blue, but all with clear white spots studded over the back and flanks. They emit a rapid clucking sound, by vibrating the tongue against the palate, whence the name Gecko. The Arabs believe

GECKO. (*Ptyodactylus gecko.*)

them poisonous, and that their crawling over the body produces leprous sores; but there seems to be no foundation for the notion. Though very beautifully marked, their shape and general appearance is very repulsive, whence the disgust with which they are regarded.

LIZARD. Heb. *letaah*, Lev. xi. 30.—The word does not occur elsewhere, but there is no question as to the correctness of the translation. The number of species of Lizard in Palestine and the adjacent countries is very great. Every kind of soil and every district has its numerous species, and they swarm most especially in the barren and desolate wilderness. There are Lizards of the water, and Lizards of the land. Immense numbers are peculiar to the sandy deserts; others bask on the rocks, and shelter themselves securely in the caves and fissures of the glens. Some species resort to the culti-

vated plains; others run among the brushwood of the Galilean hills; many others climb the trees of the forests of Gilead and Tabor, and seek their food among their branches.

The Chameleon, the Monitor, the Dhabb, and the Gecko have been already described. Whether *letaah* denotes any particular species, or merely the Lizard tribe generally, may be doubted. Bochart has shown, with much ingenuity, that if any particular lizard is intended by the name, it is the Gecko, as the root which, though not found in Hebrew, exists in Arabic, signifies that 'which clings to the ground,' and this power of adhesion is very strongly exhibited by the Gecko, which, by the extraordinary structure of the toes, can run in an inverted position, and often suspends itself for a long time beneath the large leaves of trees. The Gecko, however, seems indicated by the word '*anákah*' (FERRET); and all Lizards have the habit of clinging very closely either to the ground or to any substance from which it may be attempted to detach them.

Twenty-two species of Lizard were collected by us in Palestine, belonging to eighteen genera. Of these the most conspicuous and beautiful in the woods and cultivated grounds are the different species of Green Lizard (*Lacerta*), especially the well known *Lacerta viridis* of South Europe, and *Lacerta lævis*. They run rapidly among the leaves and brushwood, and feed on beetles, locusts, and worms. They are also very destructive to the eggs of small birds, whose nests they hunt for in the branches of trees with persevering assiduity. The Arabs believe that it is for the purpose of frightening off the Lizards that many birds invariably place the *exuviæ*, or cast off skins of snakes, in the lining of their nests, as there is a great antipathy between serpents and lizards, in which the latter are the sufferers. They are perfectly harmless, though, when attacked, they will grasp a stick, or any substance presented to them, and retain their hold with great pertinacity. They vary in markings, but are generally of a bright, light green, with black spots. They remain dormant in holes in winter, as do all the members of the Lizard tribe.

Another group of Lizards, still more common in Palestine, are the *Zootocinæ*, or Wall Lizards, to which genus belong our common English Lizards, and of which there

are several species in the Holy Land, which in warm weather swarm by thousands on the rocks and walls, as well as on stony ground, feeding on flies and winged insects. They are easily caught, and are more lively and intelligent than any other reptiles. They are sometimes tamed, when they become very docile, but are more frequently used for food by the lowest class of Bedouin, though the stricter Mohammedans look upon lizard flesh as an abomination.

One of the largest and most beautiful Lizards in Palestine is the *Plestiodon auratus*, belonging to the family of the Skinks or Sand Lizards. Its body is yellow, beautifully spotted with red and orange; but it is rare in the cultivated parts of the country, preferring the barren and rocky districts, especially by the Dead Sea. The Skinks are exceedingly numerous in species, and, unlike the true Lizards, do not climb, but confine themselves to dry and stony or sandy soils, avoiding water, and hiding themselves in the sand or under stones. Their shape is rather serpent-like, as the tail does not suddenly contract, and the legs are generally very short, and in some species are very feeble, or even concealed beneath the skin, so that they progress with a snake-like motion.

The Glass Snake (*Pseudopus pallasii*) is very common in Syria. It has only rudimentary hind legs, and is taken by the natives for a serpent. Its black colour and snake-like form render it an object of aversion, but it is perfectly harmless, living chiefly in the cultivated plains, and feeding on small lizards and mice. Its length is from two to two and a half feet, the tail forming two-thirds of the whole extent.

Mole. Heb. *tinshemeth* (Lev. xi. 30).—To be distinguished from *Chephor peroth*, the word which is elsewhere rendered 'Mole.' '*Tinshemeth*' is supposed to be the Chameleon. [See Chameleon.]

Snail.—Two words are translated 'Snail' in our version. Our only present concern is with one of them, '*chomet*,' which occurs but once in Scripture, as the name of one of the unclean creeping things, in Lev. xi. 30. Most of the old versions understand it of some kind of Lizard. It can scarcely be the Snail, as the Jews of the present day use it, as do all other Orientals, for food, without holding it unclean; though the Rabbinical commentators class it among unclean animals.

Bochart argues from '*chomeʿon*,' signifying 'the sand,' that *chomet* is the Sand Lizard, *chuláca* of the Arabs. The Sand Lizards comprise many species, both of the Skinks mentioned above, and of the genus *Seps*. All the species are inhabitants of dry and sandy situations, and chiefly found in the wilderness of Judæa, the Jordan valley, and the Peninsula of Sinai. Many of them have no visible feet, and they are generally small, and save themselves by burrowing rapidly into the sand instead of by flight. Their colour partakes for the most part of the prevailing hue of the desert, but many of them, though not brilliantly, are very delicately marked. The species without visible feet are termed Sand-fish by the Arabs, and are prized as a delicacy in North Africa, though looked upon as unclean by the Jews. The flesh is white, and very good. Considering that their external form assimilates them very closely to the Serpent tribe, it is highly probable that this group, so familiar to Israel in the wilderness, was distinguished from the other Lizards by Moses under the name of *chomet*.

SERPENT. ADDER. ASP. COCKATRICE. VIPER.—Seven Hebrew words are employed to denote the Serpent tribe, and as they are for the most part rendered indiscriminately in our version, by the various English names given above, it will be easiest to consider the whole group together. In the New Testament, 'serpent' is the rendering of ὄφις, the generic term for all the Ophidian order; while ἔχιδνα, any poisonous snake, is translated 'viper,' and ἀσπὶς, 'asp' (Rom. iii. 13).

(1.) The Serpent tribe in general appears to be denoted by the Hebrew '*nachash*,' which is always translated 'serpent,' and has no reference to any particular species. It may be taken as the equivalent of the Greek ὄφις, *i.e.*, serpent generally. In Ex. vii. 9, 10, 12, the Hebrew '*tannin*,' which is elsewhere generally rendered 'dragon' [see Deut. xxxii. 33; Ps. lxxiv. 13; xci. 13; Isa. li. 9; Jer. li. 34; Ez. xxix. 3; xxxii. 2; &c.], and sometimes 'whale' [see Job vii. 12, &c.], is rendered 'serpent,' and doubtless points to some deadly land serpent which the Egyptian magicians were in the habit of charming. But, from the frequent occurrence of the word to denote any monster, whether of the sea or land, such as the ancients pictured the Dragon, or land-monster, and the Leviathan, or sea-monster, and

from its typical use to represent the power of the king of Babylon (Jer. li. 34), as well as of the king of Egypt (Isa. li. 9; Ez. xxix. 3; xxxii. 2), we cannot attempt to limit the word to any particular species.

The Serpents of Palestine are very numerous, the country being adapted for their residence for the same reasons which render it favourable for the Lizard tribe. Only eighteen species were secured by ourselves, and a few others have been brought to Europe by previous observers. But a much larger number, we have every reason to believe, remain undescribed. Of the species procured, thirteen belong to the sub-order of innocuous snakes. The greater number of these belong to the genera *Ablabes* and *Zamenis* of the Colubrine family, harmless, and many of them brilliantly coloured. They are well proportioned, slender, with the tail very gradually tapering, and live exclusively on land. Some are very large, but most of them of rather small size. There is one very common Snake in the marshes and lakes—*Tropidonotus hydrus*—and a few species of harmless Sand-snakes, among which *Eryx jaculus* is very common. No species of Python or Rock-snake has yet been brought from Palestine.

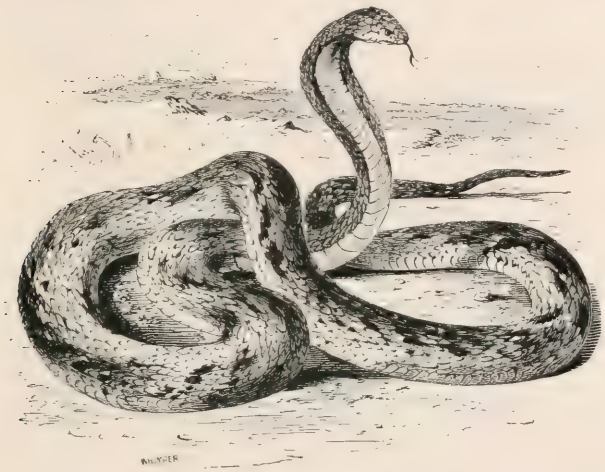
The venomous Snakes of the country belong to four genera. They are the deadly Cobra (*Naja haje*), and four Viperine snakes, two true Vipers (*Vipera euphratica*, and *V. ammodytes*), one Daboia (*D. xanthina*), and *Echis arenicola*, a very common and dangerous reptile in the hotter and drier parts of the country. All these Serpents, with the exception of the Daboia, belong to the Mediterranean and North African fauna, or are closely allied to it.

(2.) Asp. Heb. *pethen*.—The Hebrew word occurs six times: "Their wine is . . . the cruel venom of asps" (Deut. xxxii. 33). "The gall of asps within him." "He shall suck the poison of asps" (Job xx. 14–16). "The sucking child shall play on the hole of the asp" (Isa. xi. 8). Also Ps. lviii. 4, 5, "They are like the deaf adder [marg. asp] that stoppeth her ear; which will not hearken to the voice of charmers, charming never so wisely." And Ps. xci. 13, "Thou shalt tread upon the lion and adder" [marg. asp]. The English word is derived from the Greek and Latin *aspis*.

It is evident, from the passages quoted, that *pethen* de

notes some poisonous serpent; that it was one that dwells in holes; that the serpent charmers were in the habit of exercising their art upon it; and that it was some particular species, distinct from the other poisonous snakes mentioned under the various names which follow.

We are not able to ascertain what was the ancient *aspis*, a name which seems to have been applied to more than one species; but the most probable explanation of the Heb. *pethen*, is that it represents the Egyptian Cobra (*Naja haje*), also well known in Southern Pales-



ASP. (*Naja haje.*)

tine, the serpent which is most usually employed by the serpent charmers, and which, as mentioned by Isaiah, is in the habit of concealing itself in holes in walls and rocks. It has the power of dilating its neck, by raising the anterior ribs so as to expand the front of its breast into the shape of a flat dish. When alarmed or disturbed, it raises itself into an upright posture, supported on the lower vertebræ of the tail, and bounds forward with great force. In this position it is often portrayed on Egyptian monuments, and is used to symbolize immortality. It was also employed as the emblem of the protecting divinity of the world, and we

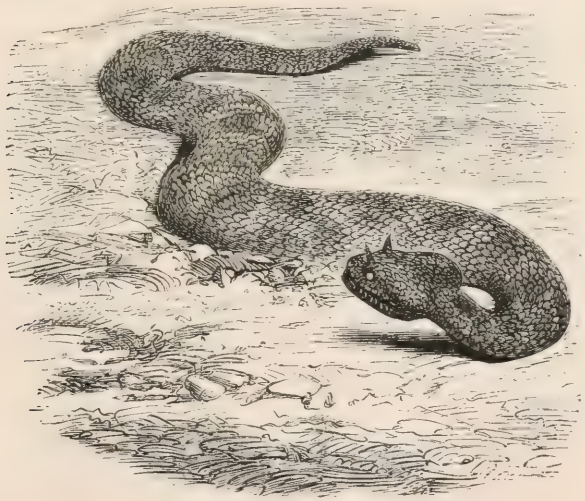
find sculptured over the portals of their temples a cobra on each side of a winged globe.

The art of serpent charming, referred to in Ps. lviii. 4, and Jas. iii. 7, is of immense antiquity, and is practised not only in Africa, but in India. In the latter country it is exercised on another species of cobra (*Naja tripudians*) very like the *haje*. The resources of the charmers appear to be very simple—the shrill notes of a flute, which are the only kind of tones which the Serpent, with its very imperfect sense of sound, is capable of distinctly following: and, above all, coolness and courage, combined with gentleness in handling the animal, so as not to irritate it. The charmers are not impostors; for, though they may sometimes remove the fangs, it is a well-attested fact that they generally allow them to remain, and they will operate on the animals when just caught as willingly as on individuals which have long been in their possession; but they are very reluctant to make experiments on any other species than the Cobra. When a cobra has been discovered in a hole, the charmer plays at the mouth until the Serpent, attracted by the sound, comes out, when it is suddenly seized by the tail, and held at arm's length. Thus suspended, it is unable to turn itself so as to bite, and, when it has become exhausted by its vain efforts, it is put into a basket, the lid of which is raised while the music is playing, but, at each attempt of the Serpent to dart out, the lid is shut down upon it, until it learns to stand quietly on its tail, swaying to and fro to the music, and ceases to attempt an escape. If it shows more restlessness than ordinary, the fangs are extracted as a precaution. Instances are not uncommon in which, with all their care, the jugglers' lives are sacrificed in the exhibition.

The expression in the Psalms of 'the deaf adder that stoppeth her ears,' seems simply to allude to the fact that there are some species of Serpent not amenable to the charmer's art, or that there are individuals of the ordinary Cobra which defy all his attempts to soothe them. These are called *deaf*. The force of the comparison with wicked men made by the Psalmist lies in fact that they, like the Adder, can hear the charmer's song, but obstinately refuse to do so. If reference had been made, as some have supposed, to a species of Ser-

pent which had not the power of hearing, the whole force of the illustration would be lost. There is, therefore, no occasion to search for some species which is literally deaf, or to consider the groundless stories that have been propagated of serpents stopping their ears with their tail or with dust, in order not to hear the charmer, for no serpent possesses any external openings to the ear. There is no doubt a popular impression prevails that the Adder is deaf, grounded perhaps on the absence of external ears, perhaps on a mistaken interpretation of the passage in the Psalms.

It has been stated that the jugglers, by pressing the nape of the Cobra's neck with the fingers, know how to throw it into a mesmeric state, which renders it stiff and immovable, thus seeming to change it into a rod or stick. I cannot, however, vouch for this from personal observations.



ADDER. (*Cerastes hasselquistii.*)

(3.) ADDER stands in our version to represent four Hebrew names of serpents. One of these (*'pethen'*) has been already identified with the Cobra. [See ASP.] *'Shephiphon'* occurs but once, in Gen. xlix. 17: "Dan shall be a serpent by the way, an adder [marg. arrow-

snake, Heb. *shephiphon*] in the path, that biteth the horse heels, so that his rider shall fall backward." The Serpent here intended is no doubt identical with that called by the Arabs '*shiphon*' (*Cerastes hasselquistii* of naturalists), the well-known Horned Snake, a small serpent, of a sandy colour, with pale brown, or sometimes blackish, irregular spots, and rarely exceeding a foot or eighteen inches in length, which is well known in the sandy deserts of Abyssinia, Egypt, the Sahara, and Arabia Petræa. It can be at once recognised from every other serpent by the peculiar horn-like appendages just above the eyes, covered with small scales, which are always developed in the male, and sometimes, to a less extent, in the adult female, and from which it derives its name—*Cerastes*, or Horned Snake.

Another peculiarity of the Cerastes assists us in identifying it with '*shephiphon*'—its lying in ambush in the path, and biting the horse's heels. Its habit is usually to coil itself on the sand, where it basks in the impress of a camel's footmark, and thence suddenly to dart out on any passing animal. So great is the terror which its sight inspires in horses, that I have known mine, when I was riding in the Sahara, suddenly start and rear, trembling and perspiring in every limb, and no persuasions would induce him to proceed. I was quite unable to account for his terror, until I noticed a Cerastes coiled up in a depression two or three paces in front, with its basilisk eyes steadily fixed on us, and no doubt preparing for a spring as the horse passed. Bruce states that the Cerastes, when advancing to attack, moves sideways with great rapidity, with a gait differing from that of all other serpents.

This species is said to have been the Asp with which Cleopatra killed herself. I did not meet with it myself in the Holy Land, but it has been repeatedly observed, and is well known in the southern wilderness of Judæa. It is extremely venomous, causing the death of a man in half an hour, and is considered much more vicious than even the Cobra, as it will attack unprovoked. Its ordinary food consists of jerboas and desert marmots. By comparing the tribe of Dan to this wily serpent, the Patriarch intimated that, by stratagem, more than by open bravery, they should avenge themselves of their enemies, and extend their conquests. This was illus-

trated by the wily manner in which Samson destroyed his Philistine foes.

(4.) '*Achsub* occurs only once, in Ps. cxl. 3, where it is translated 'adder': "Adder's poison is under their lips." St. Paul, in quoting the passage in Rom. iii. 13, renders it by the Greek ἀσπὶς. No Arabic equivalent of the word has been found, and the etymology, which is explained by Gesenius as a compound of two roots, signifying 'that which rolls itself up and lies in ambush,' would apply to any poisonous snake. Besides the Cobra and the Cerastes, several other species of venomous snakes are common in Syria, and we may apply the name either generically or specifically to the Vipers. Two species, *Vipera ammodytes* and *Vipera euphratica*, we found to be very common. The former of these was known to Linnæus as inhabiting Palestine. They are plainly-coloured serpents, with broad, flat heads and suddenly-contracting tails.

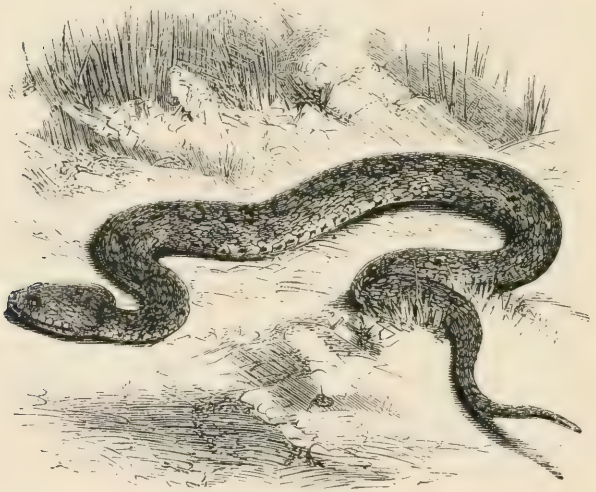
'*Tziph'oni*' is translated 'adder' in Prov. xxiii. 32; but in the margin and where it occurs elsewhere, 'cockatrice.'

(5.) Cockatrice, Heb. *tzeph'a*, *tziph'oni*, is named five times in the Old Testament: "At the last it biteth like a serpent, and stingeth like an adder" [marg. cockatrice] (Prov. xxiii. 32). "The weaned child shall put his hand on the cockatrice' den" (Isa. xi. 8). "Out of the serpent's root shall come forth a cockatrice, and his fruit shall be a fiery flying serpent" (ch. xiv. 29). "They hatch cockatrice' eggs . . . he that eateth of their eggs dieth, and that which is crushed breaketh out into a viper" (ch. lix. 5). "Behold, I will send serpents, cockatrices, among you, which will not be charmed, and they shall bite you, saith the Lord" (Jer. viii. 17); from which passage we may conclude that the *tziph'oni* was considered more deadly than the *pethen* (serpent). The name is derived from a root signifying 'to hiss,' a character common to all serpents, and which, therefore, does not aid in the identification of the Cockatrice.

It may possibly be the great Yellow Viper (*Daboia xanthina*), a very beautifully-marked yellow serpent, and the largest of the vipers found in the Holy Land, as well as one of the most dangerous from its size and its nocturnal habits, in which it differs from the Cobra and Cerastes. I once killed a Daboia with a levere swallowed whole in its stomach. On another occasion

I saw one spring on a quail which was feeding. It missed its prey, and the bird fluttered on a few yards, and then fell in the agonies of death. On taking it up, I found that the Viper had made the slightest possible puncture in the flesh of one of the wings as it snapped at it, and this had caused death in the course of a few seconds.

Some commentators, as well as the Septuagint, have explained the Cockatrice to be the Basilisk, but this is an altogether fabulous animal, not to be confounded with the Basilisk lizard.



ECHIS ARENICOLA.

(6.) Viper, Heb. *eph'eh*, always thus translated, occurs three times: "The viper's tongue shall slay him" (Job xx. 16); "The viper and fiery flying serpent" (Isa. xxx. 6); "That which is crushed breaketh out into a viper" (ch. lix. 5). 'Viper' is also the rendering of ἔχιδνα in the New Testament, which word was used by the Greeks for any poisonous snake (Matt. iii. 7; xii. 34; xxiii. 33; Luke iii. 7; Acts xxviii. 3).

We have no clue to the species intended by the Hebrew from the signification of the name, which is

derived from a root meaning 'to hiss,' and we can only state with certainty that it was venomous. The Hebrew may very possibly be identical with the Arabic '*el ephah*,' the name of a poisonous snake in the Sahara, of small size. Travellers have commonly applied the description of the '*leffah*,' given by Dr. Shaw, to the Algerian Viper; but I believe I have identified it with the *Echis arenicola*, or Sand Viper, a species of small size, about a foot long, varying in colour, and very common through the whole of the sandy regions of North Africa from west to east, and in Arabia and Syria. We found it frequently in winter under stones by the shores of the Dead Sea. It is very rapid and active in its movements. Though highly poisonous, it is not so much to be dreaded as the fatal Cobra or Cerastes.

The Viper (ἔχιδνα) that fastened on St. Paul's hand at Melita may very probably have been the *Vipera aspis*, or Mediterranean Viper, which is found in Sicily and almost all the Mediterranean islands. No venomous snake is now known to inhabit Malta; but this fact need occasion no difficulty, for the great increase of cultivation and population in that island would of necessity have effected its extermination long since. It is an animal partial to wood, and the Viper which fastened on St. Paul's hand came out of the firewood. Nowhere has the aboriginal forest been more completely cleared away than in Malta; nowhere else is there a surface of equal extent in so artificial a state. "We need not, therefore, be surprised that, with the disappearance of the woods, the noxious reptiles which infested them should also have disappeared."

(7.) FIERY SERPENTS, Heb. *saraph* (Numb. xxi. 6, 8; Deut. viii. 15).—There is nothing to point out what particular species of desert serpent it was which was sent to chastise the rebellious Israelites in the wilderness. The epithet 'fiery,' translated by the Septuagint 'deadly,' plainly has reference to the bite, and the sensation produced by it. We have already seen that there are many species of deadly snake in the Sinaitic wilderness. Any or all of these may have been the "serpent of the burning bite," which so awfully visited the children of Israel.

(8.) The FIERY FLYING SERPENT of Isa. xiv. 29, xxx. 6 is quite distinct from the fiery serpent of the wilderness. The expression cannot have reference to the Flying or

Tree Snakes which leap from branch to branch, as they are all perfectly harmless. There are no serpents with wings or membranes, though there are a class of harmless lizards, called *Draco* or *Dracunculus*, with expansile membranes, by which they can, bat-like, pass from tree to tree. But none of this species are known to inhabit Bible lands, and they are creatures of the forest, not of the 'south country' spoken of by Isaiah, and always used to denote the southern desert. The passages in Isaiah may refer to the same idea or tradition mentioned by Herodotus of winged serpents, whose bones he thought he had seen in Arabia (II. 75, III. 107). Either the expression in the prophecies may be taken figuratively of the sand serpents which dart and spring with swiftness in the desert, or it is a poetical emblem signifying a power even more deadly and destructive than the Cockatrice, from the eggs of which the Fiery Flying Serpent should be hatched.

Besides the many allusions in Scripture to the habits of the Serpent tribe which have been already adduced, there are various other incidental references to their habits and characteristics. Their production from eggs is spoken of by Isaiah: their habit of lying concealed in holes in walls by Amos: "As if a man . . . . went into the house and leaned his hand on the wall, and a serpent bit him" (v. 19). While in many passages the poison is ascribed to the bite, in others the tongue is spoken of: "The viper's tongue shall slay him" (Job xx. 16), in allusion either to the sharp-forked tongue of the Serpent, which it darts rapidly backwards and forwards, or speaking of the tongue for the mouth generally.

The habit of the Viper tribe to lie concealed in thickets is referred to in Ecclesiastes: "Whoso breaketh a hedge, a serpent shall bite him" (ch. x. 8).

Agur names the mode of progression of the serpents as one of the four things which were too wonderful for him: "The way of a serpent upon a rock" (Prov. xxx. 19). This is thus explained by Dr. Günther: "The organs of locomotion for the exceedingly elongate body of the snake are the ribs, the number of which is very great, nearly corresponding to that of the vertebræ of the trunk. Although their motions are in general very quick, and may be adapted to every variation of ground over which they move, yet all the varieties of

their locomotion are founded on the following simple process. When a part of their body has found some projection of the ground which affords it a point of support, the ribs alternately of one and the other side are drawn more closely together, thereby producing alternate bends of the body on the corresponding side. The hinder portion of the body being drawn after, some part of it finds another support on the rough ground, or some projection: and the anterior bends being stretched in a straight line, the front part of the body is propelled in consequence. During this peculiar kind of locomotion the numerous broad shields of the belly are of great advantage, as by means of the free edges of those shields they are enabled to catch the smallest projections of the ground which may be used as points of support. A pair of ribs correspond to each of these ventral shields. The snakes are not able to move over a perfectly smooth surface."—*Reptiles of British India*, p. 164.

Serpents are said in Scripture to eat dust (Gen. iii. 14): "Dust shall be the serpents' meat (Isa. lxv. 25); "They shall lick the dust like a serpent" (Mic. vii. 17). The expression may be explained by the fact that the Serpent tribe feeding on the ground must necessarily swallow much sand and dust with their food, or it may be a figurative expression for their crawling on the ground. In the curse pronounced on the Serpent at the fall, it is also denounced, "On thy belly shalt thou go." This does not of necessity imply any change in the structure of the animal, for from the whole mechanism of the body it could never have moved otherwise than it does at present; but as the symbol and type of the evil spirit, 'cursed above all cattle,' its form and movements were to be regarded with disgust and hatred by mankind, and to be looked on as a mark of degradation.

But the chief quality ascribed to the Serpent is its subtilty: "The serpent was more subtle than any beast of the field" (Gen. iii. 1). This is evidently intended of malignant craftiness. In all ages this has been held characteristic of the Serpent, both from its cunning in obtaining its prey, by stealth or by fascination, and also from its wariness in avoiding danger. It is in this latter view that our Lord probably regards it when He enjoins His disciples, "Be ye wise as serpents" (Matt. x. 16).

i.e., that they were not unnecessarily to provoke persecution and invite opposition when sent forth. It was probably from a tradition of the instrumentality of the Serpent in the fall of man that it was used throughout the East as an emblem of the spirit of disobedience and of the Evil Spirit. The doctrine of Zoroaster, that the Evil One, in the guise of a serpent, first taught men to sin, is a plain tradition of the history of the fall.

To this we may add, that on the monuments of Egypt there not unfrequently occurs the figure of a man in regal costume (probably an incarnate deity) piercing with a spear the head of a large serpent—remarkably suggestive of a tradition of the prophecy that "the seed of the woman should bruise the serpent's head."

Frog. Heb. *tzephard'a.*—Frogs are only mentioned in the Old Testament, in the history of the second plague of Egypt, in Ex. viii., and when that event is referred to in Ps. lxxviii. 45, cv. 30; and in the New Testament, as the form of the unclean spirits, in Rev. xvi. 13. In the latter passage they are a symbol of uncleanness, partly from their slimy appearance, and partly from the mud and marshes in which they delight.

In the Egyptian plague the Frogs came up from the streams (canals), the rivers, and the ponds or marshes, and filled the houses, even to the bed-chambers, the beds, the ovens, and the kneading-troughs. The occurrence was plainly supernatural; for though inroads of Frogs have occurred elsewhere, yet at this time of year, the spring, the young Frogs would naturally be still in the Tadpole state. The death of the Frogs in such numbers that they were gathered into heaps, and the land stank, was also supernatural. The magicians were enabled by their enchantments to increase the plague, as they had previously imitated Moses' miracles, but they were wholly incapable of removing it.

The common, and, indeed, the only Water Frog of Egypt, is the Edible Frog (*Rana esculenta*), which is well known on the continent of Europe, though only existing in one or two localities in England, where it has probably been introduced. It is larger than our Common Frog, and generally of a bright green colour, prettily spotted. It is found in myriads in all parts of Egypt where there is marsh or water, and its loud croaking by night is perfectly deafening. It is equally abundant in

the Holy Land, in some of the lakes and pools of which country the Frogs are so amazingly numerous that they cover the surface towards evening in one solid, unbroken mass. In neither country is the Common Frog of England, nor, indeed, any other species of Ground Frog, found.

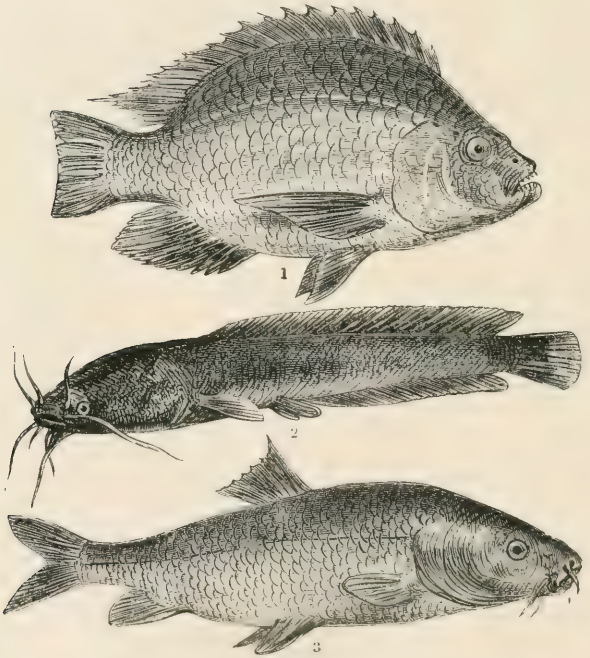
The little Tree Frog (*Hyla arborea*), which is only about an inch and a half long, is very common in the Holy Land and in Egypt, living on the trees, sitting on a leaf, and catching the flies as they pass. It is a beautiful little creature, varying in colour, but generally light green above, with a pink edge, and white underneath.

The Toad is not mentioned in Scripture. Only one species has been met with in the Holy Land (*Bufo pantherinus*), a southern form, and which is very common in all parts of the country.

CHAPTER X.

FISH, FISHING, FISHERMAN.

1. Creation of Fishes.—Fish are included in the first chapter of Genesis among the moving creatures created



FISHES OF THE SEA OF GALILEE:
1. CHROMIS NILOTICA. 2. CLARIAS MACRACANTHUS. 3. LABEOBARBUS CANIS.

on the fifth day, along with great whales (which are, strictly speaking, not fishes, but mammalia), reptiles, doubtless, and birds. They are thus set forth as having been brought into existence prior to the inhabitants of

the dry land. The researches of geology have illustrated this order of creation in a striking manner.

Fishes, as they are the lowest class in organization of any of the vertebrate animals, so they are the earliest to appear in the strata of which the crust of the earth is composed. In the old red sandstone rocks a few species of Ganoid and Placoid fishes (related to our existing sharks) are found; and they become more numerous in the more recent strata, until they reach their full development at the end of the secondary period, or the Chalk epoch, just as warm-blooded mammals or quadrupeds were first beginning to predominate on the earth. Thus geological research corroborates the order of sequence in the Mosaic record, testifying that 'the moving creature that hath life appeared' upon the earth in the waters long before it existed on the dry land.

The creation of fishes is combined in the same day with that of whales or marine monsters, reptiles, and birds; and it is to be noticed that all these classes of the earlier creation, or that of the fifth day, are oviparous, bringing forth their young from eggs or spawn (with the single exception of the Whale), while the creation of the sixth day is of mammalia, or milk-giving animals, which bring forth their young alive. Besides this point of affinity between the different orders created on the fifth day, or fifth epoch of creation, microscopists assure us that the globules of the blood of birds and fishes, when closely examined, are seen to be the same, and do not at all resemble the globules of the blood of the mammalia, or animals which sprang from the earth on the sixth day.

2. Clean and Unclean Fishes.—No particular species of fish is directly mentioned in Holy Scripture, and the only distinction made between kinds of fish is that in Lev. xi. 9–12, between those that have fins and scales, and those that have none: "These shall ye eat of all that are in the waters; whatsoever hath fins and scales in the waters, in the seas, and in the rivers, them shall ye eat. . . . Whatsoever hath no fins nor scales in the waters, that shall be an abomination unto you." The restrictions, therefore, were not extensive. Besides reptiles, all of which were unclean, the only forbidden kinds were the *Siluridæ*, or Sheat-fish, the species of which

are very common in fresh water in the East; the *Raiidæ*, or Skate fish; the *Petromyzidæ*, or Lampreys; and, though not strictly without scales, the *Squalidæ*, or Sharks. To these the Rabbis added as unclean the *Muræniidæ*, or Eels, whose scales are very minute and covered with a slimy substance.

3. SPECIES OF FISHES.—We read of Solomon that "he spake . . . . also of fishes" (1 Kings iv. 33). Doubtless the royal father of natural history distinguished the immense variety of species of fishes found on the coasts and in the inland waters of Palestine; but it is remarkable that, while the Greek language possesses more than 400 names for fishes, not one has come down to us in the Hebrew. Josephus, indeed, has noticed one or two of the most remarkable of the fishes of the Sea of Galilee.

4. ECONOMY OF FISHES.—In the economy of fishes, the Hebrews had early noticed their marvellous fecundity; as when Jacob, in blessing the sons of Joseph (Gen. xlviii. 16), where the expression, "Let them grow into a multitude in the midst of the earth," is in the original, "Let them grow as fishes do increase."

5. FISHES OF THE MEDITERRANEAN.—The fishes of the coasts of Palestine do not require special mention, as they are the same with those of the Mediterranean generally, though some species, as the Mullets, seem to be relatively more abundant in the Syrian waters. Sharks are occasionally seen; and besides fishes, among the Cetacea, Porpoises and Dolphins are common, and held unclean by Jews and Mohammedans alike.

6. FISHES OF THE NILE.—The Nile and all the lakes and canals of Egypt abound in fishes of many species. They are frequently alluded to in Scripture, and, though forbidden to the Egyptian priests, were an important part of the food of the rest of the people. Hence the severity of the plague which turned their waters into blood and destroyed their fish; and the force of the denunciation of Isaiah, in the burden of Egypt (xix. 8): "The fishers also shall mourn, and all they that cast angle into the brook shall lament, and they that spread nets upon the waters shall languish." When Israel murmured for flesh in the wilderness, their complaint was, "We remember the fish which we did eat in Egypt freely" (Numb. xi. 5); and the word translated in the previous

verse *flesh*, is by the best Hebraists considered to apply exclusively to the flesh of fish—certainly a much more savoury food than any flesh diet which was likely to be within the reach of the oppressed Israelites—whereas fish was and is to this day a staple article of subsistence among the poor in that country. Not only man, but myriads of waterfowl, which abound in Lower Egypt more perhaps than in any other country in the world, depend upon fish, and yet the supply is as inexhaustible as ever.

Herodotus, Josephus, and other ancient writers, notice the prodigious abundance of fish in the Egyptian waters. The same sorts were held to be unclean as among the Jews, and probably the reason of the prohibition in both cases was sanitary as much as ceremonial, for the various kinds of Sheat-fish, or Siluroids, the most abundant of the unclean species, are, as we can testify from experience, most unsavoury eating. The greater number of the fresh-water fishes of Egypt belong to the Bream, Perch, and Carp tribes (*Sparidæ*, *Labridæ*, *Chromidæ*, and *Cyprinidæ*).

7. FISHES OF THE SEA OF GALILEE.—Very similar in character to the fishes of the Nile are the species of the Jordan and its affluents, abounding most of all in the Lake of Galilee. Josephus remarks upon this fact (*Bell. Jud.* III. x. 8), and says that the country people thought it to be connected with the Nile, because of the identity of the *Coracine* (Sheat-fish) found in it. The density of the shoals of fish in the Sea of Galilee can scarcely be conceived by those who have not witnessed them. Frequently these shoals cover an acre or more of the surface and the fish, as they slowly move along in masses, are so crowded, with their back fins just appearing on the level of the water, that the appearance at a little distance is that of a violent shower of rain pattering on the surface.

We obtained fourteen species of fishes in the lake, and probably the number inhabiting it is at least three times as great. Among those we collected two very abundant species (*Chromis nilotica*, Hasselquist, and *Clarias macracanthus*, Günther), the Bream and Sheat-fish, are identical with the common species of the Nile. Four other species, three of which were very abundant, were hitherto unknown to science, but all essentially African in their characteristics—the genus *Hemichromis*. Their nearest

congeners are either from the Nile, or from the lakes of South-eastern Africa, discovered by Dr. Livingstone. Geologically, this is an important fact, and, taken in conjunction with the number of birds and plants of African forms and affinities in the Jordan valley, helps to join Palestine very closely to that continent.

8. Fishes of the Jordan and the Streams.—Of course the fishes of the Jordan and its feeders do not differ from those of the Sea of Galilee. They are chiefly Barbel and Bream, and in every permanent stream abound in amazing numbers. The Jordan itself is alive with fish to its very exit, and carries, by the rapidity of its current, into the poisonous waters of the Dead Sea millions of fry, chiefly of Bream, which are soon stupefied, and become the easy prey of the birds which await them, while myriads of their carcases strew the shore near the mouth.

During the recent visitation of locusts in Palestine, the fishes might be seen packed in masses in the Jordan, patiently awaiting, with upturned snouts, the falling of these destructive insects into the river from the trees, after they had completely denuded them of their foliage, when they attempted to cross to the other side. Myriads of locusts were thus devoured.

9. Fishes of the Jabbok.—In none of the streams are the fish more abundant than in the Jabbok, principally the *Barbus longiceps*, erroneously described as a trout by Burckhardt. Among the ruins of Rabbath Ammon, in the little stream which still flows within the Roman paved channel through the city, there is one continuous line of fish coming and going; and with the simplest appliances—as by a shirt, extemporized into a bag—we were able to catch any number.

10. Fish-pools of Heshbon.—At Heshbon, just below the hill on which the city stands, flows a little stream, which winds round the base of Nebo. There are in it, to the south-east of the ruins, some interesting remains, which illustrate the expression in Canticles: "Thine eyes, like the fish-pools in Heshbon, by the gate of Bath-rabbim" (vii. 4). A large tank, now dilapidated, once collected, for summer use, the scanty waters of the brook, and was doubtless utilized at the same time for the conservation of the fish which still abound in the stream. This passage in Canticles is one of the few allusions in Scripture to anything like an artificial pre

servation of fish. See also Isa. xix. 10: "All that make sluices and ponds for fish."

11. Fish destroyed by Drought.—Yet in the droughts which so frequently have visited these regions, the inhabitants must have been familiar with the destruction of fish through the drying up of the streams. This is alluded to in Isa. l. 2: "Their fish stinketh, because there is no water, and dieth for thirst."

The Arabs of the present day have a prejudice against the use of fish, and never attempt to use the abundant supplies stored in the Jordan and its affluents.

12. Fishes near the Dead Sea.—Besides the larger species in the rivers available for man's use, the smallest springs near the Dead Sea, even those which are saline, sulphurous, and hot, are stocked with shoals of minute species, not larger than gudgeons or minnows, and some much smaller, of the genus *Cyprinodon*, such as are found in the hot springs of Egypt and North Africa. But none of these survive in the saline waters of the Dead Sea itself. Numbers of them enter the lake, but are soon stupefied and seen floating upturned and dead.

Hence, in the mystic vision of Ezekiel, no more forcible illustration of an entire regeneration of the land by the waters of life could be given than a description of these waters of death peopled by living things. "And it shall come to pass, that the fishers shall stand upon it from En-gedi even unto En-eglaim; they shall be a place to spread forth nets; their fish shall be according to their kinds, as the fish of the great sea, exceeding many" (ch. xlvii. 10).

13. Fishes of the Western Streams.—The fish of the streams flowing into the Mediterranean are not so numerous as those east of its watershed, but similar species are found in them, as, for instance, the Blenny (*Blennius lupulus*) in the Kishon. The inhabitants of Western Palestine have not the same prejudice against their use as the Bedouin, and are diligent fishermen. The fishes of the Lebanon streams approximate more to those of Greece and Asia Minor than to those of the Nile.

14. Phœnician Fisheries.—Plentiful as are the fish of the Mediterranean, the coasts of Palestine offer but few localities suitable for carrying on extensive fisheries, and of these the best were not in the actual possession of Israel. Consequently we find few traces in the Old

Testament of their having directed their attention to fishing. Tyre and Sidon, commodious ports for small craft, were held to the end of their national history by the Phœnicians; nor have we any record of the more southern ports, Accho (Acre) and Achzib (Zib), having been wrested from their original possessors (Judg. i. 31). Cæsarea was an artificial port, and only formed in the time of the Herods, so that Joppa (now Jaffa) was the single available harbour in the possession of Israel where any considerable fleet of fishing-boats could find shelter.

15. FISH-MARKETS.—That from this port or from the Phœnicians—probably from both—Jerusalem was systematically supplied with fish, we may fairly conclude from the fact that one of the north-western gates of the city of David was named the *Fish-gate* (2 Chron. xxxiii. 14; Neh. iii. 3), the obvious name for the gate which opened on the fish-market, according to the fashion of Oriental cities to the present day, where each commodity has its distinct bazaar. We gather from Neh. xiii. 16 that the dealers in fish at that time were men of Tyre, who lodged outside the city. "For there dwelt men of Tyre also therein, which brought fish and all manner of ware, and sold on the sabbath unto the children of Judah and in Jerusalem." Nehemiah at length succeeded in checking this desecration of the sabbath by the heathen traders. Their fish was doubtless salted or sun-dried; and at that time there could not have been any *Jewish* fisheries organized at Joppa, though ordinarily Jerusalem could be supplied also with fresh fish from thence, as it is at the present day.

16. FISHERIES AT TYRE.—The Phœnicians, with their maritime tastes and habits, were always the principal fishermen of the Syrian coasts, employing boats and nets. The Hebrew name of Zidon signifies fishing-place, and this was doubtless the earliest industry of the Sidonians. In the burden of Tyre (Ez. xxvi.) the prophet declares, that Tyre "shall be a place for the spreading of nets in the midst of the sea" (ver. 5). "And I will make thee like the top of a rock; thou shalt be a place to spread nets upon" (ver. 14)—a prediction which, in the present ruined and degraded condition of Tyre, has been fulfilled to the very letter. The inhabitants of the wretched village subsist principally by fishing; their boats are the only craft in the harbour of her

whose merchants were princes; and the old wharves and the column-strewn promontory, whence all the palaces have been long since swept away, are covered with their nets, spread out to dry over the ruins.

17. Fishery of the Sea of Galilee.—The inland fishery of the Sea of Galilee must have been of considerable commercial importance in the Old Testament, as well as in the New Testament period. Yet it is not alluded to before the Gospels. The Rabbis, however, had a tradition that by the command of Joshua the fishery was to be free to all comers—a law which has not been followed by the Turkish rulers, who farm it as a government monopoly. We have already alluded to the variety and the immense numbers of the fishes of the lake. In our Lord's time the number of boats used for fishing there was very considerable, as we learn also from Josephus (B. J. III. x. 9). To the whole Christian Church the fishermen of Galilee must ever be subjects of the deepest interest, since from among them were chosen the chief and the most favoured of the Apostles and Evangelists; and their craft and calling has supplied us with many of the most familiar metaphors and symbols of our faith.

18. Methods of Fishing. Draw-net.—The Sea of Galilee was fished principally by means of the draw-net, *σαγήνη*, or seine, as we still call it, a large net, leaded and buoyed, which is carried out by a boat, cast, and then drawn in in a circle, so as to 'enclose a great multitude of fishes.' The draw-net is still employed in this way by the only two fishing boats existing on the lake. It was this net to which our Lord compares the kingdom of heaven, in the parable of the draw-net (Matt. xiii. 47–50). The corresponding Hebrew term is used in Isa. xix. 8, "They that spread nets upon the waters shall languish;" and Hab. i. 15, "They catch them in their net, and gather them in their drag." The net and boat fishing are chiefly practised at night; the boats invariably returning to Tiberias at daybreak, the night being the best time for taking fish, as we know in our own seas, and as we read in Luke v. 5.

19. Casting-net.—Another net, very commonly used, was the casting-net, *ἀμφίβληστρον*. This was used either by a naked fisherman wading from the shore, and by a rapid motion throwing his net and then drawing it in a

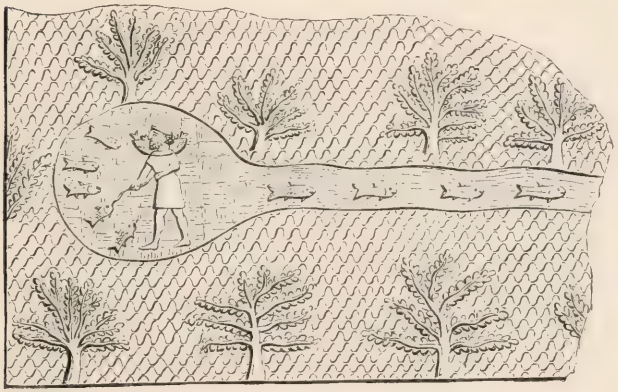
circle, or from boats. From Matt. iv. 18 we learn that it was this circular net which was employed in the first miraculous draught of fishes; and from the details of the narrative we see that it was the same sort of net which enclosed the second miraculous draught after the resurrection, as recorded by St. John, ch. xxi. The casting-net is still in common use round the lake. On one occasion, when at Ain Tabighah, identified by many topographers as the ancient Bethsaida, and now only marked by a solitary mill, we inquired of the miller if he had any fish? He replied, Yes, and ran towards what looked like a little stack of rushes; but which was in reality the hut of the fisherman, whose net was spread on the shore to dry. Out of the rushes emerged a man stark naked, who began to prepare his net for a cast. Having folded it neatly, he swam in with it a little way, cast it, and returned by a semicircular course to the shore, when he gently drew it in with a few fishes enclosed.

20. Naked Fishermen.—These fishermen with the casting-net at the present day work stark naked, with the exception of a thick woollen skull cap. When, however, we read that Peter girt his fisher's coat about him, for he was naked, we can scarcely suppose that the absolute nudity now indulged in by the Bedouin fishermen would be tolerated in those more civilized days, with a dense population on the shore, any more than Virgil's advice to the ploughman to plough naked means more than, as we should say, 'in his shirt sleeves,' but simply that Peter had on only the tunic or undergarment, in which alone the peasants frequently pursue their labours. On the other hand, it is to be borne in mind, as illustrating the present practice, that, on the Egyptian monuments, all persons catching fish and waterfowl *with nets* are depicted naked. The custom, therefore, appears to have been ancient and widespread.

21. Sorting the Fish.—The fishermen in Matt. xiii. 48 are described as drawing their net to shore, sitting down and gathering the good into vessels, but casting the bad away. The bad here, doubtless, means not the putrid or corrupt, but the unclean—those forbidden by the law as wanting fins and scales, and those rejected from prejudice or custom. As illustrating this expression, we

may observe that the greater number of the species taken on the lake are rejected by the fishermen, and I have sat with them on the gunwale while they *went through their net*, and threw out into the sea those that were too small for the market, or were considered unclean. This custom brings out in great force the full bearing of the parable, which is scarcely illustrated by any incident in our English fisheries.

22. Fishing with Hook and Line.—Other modes of taking fish in present use at the Holy Land, and alluded to in Scripture, are by the hook and line, referred to by Isaiah xix. 8: "They that cast angle into the brooks":



FISHING WITH HOOK AND LINE.

and by Habakkuk i. 15; and in the Book of Job xli. 1. The Galilean fisherman also used the hook and line, as we find from Matt. xvii. 27: "Go thou to the sea, and cast an hook, and take up the fish that first cometh up." Hooks were used either as night lines, or with rods, but only baited, as fly-fishing is unknown. Captives are depicted on the Assyrian monuments led away by fish-hooks through the noses, as we read in Amos iv. 2: "He will take you away with hooks, and your posterity with fish-hooks." So Ezekiel xxix. 4; xxxviii. 4. In Job xli. 2, "Canst thou put a hook in his nose? or bore his jaw through with a thorn?" the reference is not to fishing, but to the keeping alive in tanks, after the

Egyptian fashion, fish not required for immediate use, secured by a hook through their gills.

23. FISHING WITH SPEAR.—In the smaller streams and the northern rivers of the Lebanon, the fish spear is much used. It is alluded to in Job xli. 7: "Canst thou fill his skin with barbed irons? or his head with fish spears?"

24. WITH POISON AND BY WEIRS.—Two other modes of taking fish are practised in Palestine, not mentioned in Scripture—by poison and by weirs. The first method is very commonly employed on the Lake of Galilee by the poorest classes. Men sit on a rock overhanging the water, on which they scatter crumbs poisoned with vitriol, which are seized by the fish. As soon as they are seen to float on their backs, the men rush into the sea and collect them.

The method by weirs and stake-nets is used near the Kishon, and in some of the northern and western streams. I have also seen them in the Bireh, an affluent of the Jordan. The stake-nets are formed of a sort of cane-wattle. Among the laws of Joshua, the Rabbis relate, was one forbidding the use of stake-nets in the Sea of Chinnereth (Galilee), for fear of damage to the boats.

25. THE SUCKING FISH.—Among the unclean fishes, the Jews especially named the Cuttle-fish, not, as we know, a fish, but a cephalopod mollusc. This creature is perhaps spoken of in Ezekiel xxix. 4: "I will cause the fish of thy rivers to stick unto thy scales;" but more probably the allusion is to the Sucking-fish, or *Remora* (*Echeneis remora*, L.), which attaches itself to sharks and other large fish, and the powers of adhesion of which are so great that it is sometimes employed, when secured by a ring, for the purpose of taking turtles, to which it attaches itself in its endeavours to escape, when both are hauled in together.

26. JONAH'S FISH.—No description is given us in the Old Testament of the fish that swallowed Jonah. It is simply said, "The Lord had prepared a great fish" (i. 17). But in the Gospel (Matt. xii. 40) it is translated *whale*. The Greek word κῆτος is however used to signify any sea-monster, and must not here be taken for one of the family we call whales. This it could not have been, for the throat of any whale is far too contracted to swallow a man Nor is it absolutely necessary

to suppose a great fish to have been specially created for the occasion, since the various species of Shark, several of which occur in the Mediterranean, have been repeatedly known to swallow a man whole. The arrangement was alike beyond and above the ordinary course of nature, whether it was an existing fish or a creature specially 'prepared' that entombed the prophet.

27. TOBIT'S FISH.—It is not easy to ascertain satisfactorily to what fish the Jews referred in the story of Tobit. Certainly the legend of the fish leaping out of the Tigris to attack a man is not founded on any possible habit of any known fish. But it is probable that one of the large *Siluridæ* or Sheat-fish is intended, and Bochart refers to Galen and Dioscorides, as prescribing the gall of this fish for an eye-salve.

28. FISH-WORSHIP.—The worship of fish was prevalent among many nations of antiquity, and such idolatry is expressly prohibited in Deut. iv. 18: "The likeness of any fish that is in the waters beneath the earth." This form of idolatry probably had a twofold origin; the one a symbolical mode of recording the traditions of the deluge, typifying the patriarchs and the ark by fish or creatures half fish; the other from the fecundity of fishes, which caused them to be taken as the emblems of abundance and increase.

Among the Hindoos, Vishnû is the fish pilot; and nations wide apart, as the Tartars and the ancient Britons, had their fish gods—the one the Nataghi, the other the Brithyll of the Kelts and Belgæ. In Egypt many species of fishes were objects of veneration, as we are told by Herodotus. Cuvier has noticed no less than ten distinct species depicted on the walls of the sepulchral caves of Thebes, and the mummies of several kinds are found in great numbers stored up in the temples of Egypt.

29. DAGON, THE FISH GOD.—But among the Philistines the fish god was the national deity. *Dagon*, i.e., the fish, had many temples, the most famous of which were those of Gaza and Ashdod. He was represented with the face and hands of a man and the body of a fish. Thus we read, that when the ark of the Lord had been brought as a trophy into the temple of Dagon at Ashdod, "in the morning the head of Dagon and both the palms of his hands were cut off upon the threshold; only the

stump (Heb. *fishy part*) of Dagon was left to him" (1 Sam. v. 4). We find from 1 Mac. x. 84, that the worship of Dagon remained in Philistia even down to the epoch of the Hasmoneans, who destroyed the temple of Ashdod. Another Dagon or fish god, considered by Rawlinson to be distinct, was worshipped under the same figure by the Babylonians, and many of its sculptured and engraved figures have been found at Nimroud and Babylon. Sîdon was also the fish goddess of Phœnicia. This fish-worship was the only one of the prevailing idolatries of the neighbouring nations to which the chosen people seem to have shown no inclination; pre-eminently an agricultural and pastoral race, they were naturally averse to any intimate connection with the sea.

30. The fish has also become emblematic in the symbolism of the Christian Church, and is a familiar device on the sepulchral monuments, especially of the East. This has arisen from the circumstance that the letters forming Ἰχθύς (fish) are the initials, in the Greek language, of Ἰησοῦς Χριστὸς, Θεοῦ υἱὸς, σωτὴρ (Jesus Christ, Son of God, Saviour). The letters are most commonly inscribed at the beginning of the epitaph, but very often the fish itself is sculptured instead. Both may frequently be seen in the catacombs of Rome.

CHAPTER XI.

Invertebrate and Articulated Animals.

All the countless species of invertebrate animals and insects are grouped together in the Hebrew, under the description of 'creeping things;' and though Solomon, among his multifarious acquirements, did not overlook them, but spoke of 'creeping things,' as well as of beasts, fowls, and fishes, yet the mention of them in Scripture is for the most part incidental, with the special exception of the Locust, the habits and transformations of which noxious insect appears to have been studied and known by those who so often suffered from its ravages.

For convenience of description, it will be better to take the various creeping things mentioned in the Bible in their natural order, rather than, by treating of them alphabetically, to separate the consideration of closely-allied species.

Molluscs.

Snail.—Two Hebrew words are rendered 'Snail' in our version. The one, *chomet*, in Lev. xi. 30, must be assigned to a species of Lizard [see p. 268]. With the other *(shablul)* alone we have here to do. It occurs only in Ps. lviii. 8: "As a snail which melteth, let every one of them pass away." The word evidently points to a snail or slug, which leaves a slimy track as it passes along, and which was supposed gradually to waste away in so doing. Although this notion is zoologically incorrect, for the Snail does not waste away by emitting its slimy exudation, yet the metaphor is none the less expressive, as in accordance with the popular belief.

But there seems to be another interpretation, suggested to me by personal observation in the country, which is more forcible, more in harmony with the context, and which is physically correct. The Snails of all species in the Holy Land are in the habit, not of hybernating in winter, as they do in our colder climate, but of shutting

themselves into their shells, and remaining dormant during the dry season. Few Snails can remain long in an active state without moisture. In order to prevent the evaporation of the moisture of the body, all those molluscs which have a thin or semi-transparent shell secrete themselves in dry weather under stones, like the shell-less snails or slugs, or else among moss and under leaves, and many species also in the earth. The chinks and crevices of the limestone rocks are especially favourite hiding-places for many species, while those of the deserts, for instance, where they can find no such screen from the sun's rays, are provided with solid, colourless, and lustreless shells of enormous thickness, the calcareous substance of which prevents evaporation as they hang with their mouths glued on to the desert shrubs.

But, notwithstanding the care they take to secrete themselves, the heat often does dry them up, either by a long-continued drought, or by the sun's rays penetrating to their holes. Thus we find in all parts of the Holy Land myriads of snail-shells in fissures, still adhering by the calcareous exudation round their orifice to the surface of the rock, but the animal of which is utterly shrivelled and wasted—'melted away,' according to the expression of the Psalmist. It is very probable that this circumstance has supplied the metaphor for the passing away of the wicked in the passage quoted above.

As in all other limestone regions, Snails of numerous species are very abundant in the Holy Land. Upwards of 140 species of land and fresh-water molluscs have been recorded from that country, a large proportion being peculiar forms, not known elsewhere. Slugs are few and scarce, owing to the dryness of the climate; but their place is fully supplied by the shelled species of the genera *Helix*, *Bulimus*, *Pupa*, *Clausilia*, and *Cyclostoma*, which find everywhere in the chalk and limestone abundant material for the secretion with which the shell is formed.

In the Lebanon region the shells resemble those of Greece and Asia Minor, but are often peculiar species. On the coast they are like those of other Mediterranean regions, but in the south are more like those of Arabia, with the thick, white coating mentioned above. The shells of the Jordan valley are also for the most part peculiar. All the fresh-water lakes and perennial

streams swarm with shell-fish. Nearly thirty species have been obtained. They belong chiefly to tropical or semi-tropical forms. The univalves are of the genera *Bithinia*, *Melania*, *Melanopsis*, and *Neritina*. There are also many very fine *Uniones*, or Fresh-water Mussels, especially in the Lake of Galilee, of species for the most part differing from any found elsewhere. They are largely collected for food by the natives. So numerous are the small univalve shells, that the gravel of the beach of the Lake of Galilee and of the Dead Sea is in great measure composed of them. In the Dead Sea itself there are no living shells whatever, those which are found being washed down by the Jordan.*

Onycha, Heb. *shecheleth*, occurs only once in the Old Testament, as one of the ingredients in the holy perfume of the Tabernacle (Ex. xxx. 34). It is also referred to in Ecclus. xxiv. 15, where Wisdom compares herself to "the pleasant odour of galbanum, onyx, and sweet storax." The *Onycha* is the horny operculum or shield attached to the foot of many shell-fish, by which they close the aperture of their shell when they have withdrawn within it. It was called onyx, 'nail,' or 'claw,' from a resemblance in shape to the nail of the finger in the *Strombus* tribe, from the opercula of which the perfume was collected. When burnt it has a strong, pungent smell, and is still used in the composition of some kind of frankincense in the East. Of the *Strombus*, or Wing-shell, there are very many species, some of the smaller of which are found in the Mediterranean, but many more in the Red Sea, whence the Onycha was procured. Some species are of very large size, and are universally used as chimney-piece ornaments, being brought in great quantities from the East and West Indies. Onycha was formerly employed in medicine under the name of *Blatta Byzantina*.

Purple. Heb. *argaman*.—The name of a valuable dye obtained from shell-fish on the coasts of the Mediterranean. Phœnicia was particularly celebrated for its production, and the Tyrian dye was renowned throughout the ancient world. It was procured from two species of shell-fish, the *Murex brandaris* and *Murex trunculus*, and occasionally also from *Purpura hæmastoma*, but chiefly from the

* See Tristram on the Molluscs of Palestine (Proc. of Zool. Soc. of London, 1865, p. 530).

first-named. To the present day, thick layers of crushed shells of *Murex brandaris* may be found near Tyre, the remains of this extinct industry, and recalling the Mons Testaceus of Rome or the kitchen-middens of Denmark.

The colouring matter was extracted from a small vessel in the throat of the animal, each shell yielding only a single drop, after which the whole fish was crushed to procure an inferior dye. It is not quite certain what the colour was, whether scarlet or purple, for the Hebrew word, as well as its Greek and Latin equivalents, seems to have been used for any bright colour from scarlet or crimson to purple proper; while *blue* appears to have been extracted from another shell-fish, probably a *Buccinum*. Thus, what is called a purple robe by St. John is termed 'scarlet' by St. Matthew (John xix. 2; Matt. xxvii. 28).

These colours were the insignia of royalty or of high office among the Jews, as among the Greeks. Thus the kings of Midian, Mordecai, and Daniel are recorded to have been invested with scarlet or purple robes. The art of extracting dye from these shell-fish is now completely lost, but experiments have been made by which an inferior dye has been produced. The juice is at first white; on exposure to the atmosphere it becomes green, and afterwards redder, finally settling into a deep red purple. Pliny has left an account of the ancient process of procuring it. The wool was steeped in the liquid prior to its being spun or woven, and wool prepared at Tyre fetched an enormous price in the markets of Rome.

Pearls.—The Hebrew word thus translated (*gabish*) occurs but once: "No mention shall be made of coral, or of pearls: for the price of wisdom is above rubies" (Job xxviii. 18), where it is supposed by most commentators that rock-crystal is intended, as the word is used elsewhere for ice.

But in the New Testament pearls (μαργαρῖται) are several times mentioned, as in Matt. xiii. 45: "The kingdom of heaven is like unto a merchant man, seeking goodly pearls." They are also mentioned among the jewelry worn by women (1 Tim. iv. 9; Rev. xvii. 4), and in the vision of St. John, as forming the gates of the heavenly Jerusalem (Rev. xxi. 21). Our Lord, in the sermon on the Mount, speaks of casting "pearls before

swine" (Matt. vii. 6), when cautioning us against the profanation of what is holy and good. 'Pearls' are a common Eastern metaphor for precious sayings, for well-chosen words or apt proverbs (golden words). Thus a short didactic poem is called by the Arabs 'a string of pearls.'

Pearls were among the most highly-prized gems with the ancients, as at the present day; and formerly their value relatively to precious stones was even higher, as we may see by our Lord's parable referred to above. They are found in various kinds of bivalve shell-fish, the best being obtained from the large Pearl Oyster (*Avicula margaritifera*), the shell of which is the 'mother-of-pearl' of commerce, and which is found in the Indian Ocean, and especially in the Persian Gulf and Red Sea.

As is well known, the pearl fishery is carried on by divers, and is an important industry in the Island of Ceylon. Pearls are also found in fresh-water mussels, as in the *Alasmodon margaritiferus* of the Scottish and other mountainous streams. They are merely a secretion of the same nature as that of which the shell is composed, formed in successive layers round some grain of sand or foreign substance which has accidentally entered the shell, or caused by an injury to the inner surface of the shell. They are sometimes loose, but very frequently slightly attached to the valve of the oyster. The Chinese are in the habit of producing inferior pearls by opening the shell, puncturing it, and then placing the animal in the water again for a year or two.

Annelids.

Horseleech. Heb. *'alukah.*—In Prov. xxx. 15 we read, "The horse-leach hath two daughters, crying, Give, give." The name is derived from a root, signifying 'to adhere,' and is represented in Arabic by *'alak*, the name applied to the Horseleech of the Nile. In all languages, the insatiable appetite of the Leech tribe for blood, alluded to here by the wise man, has been proverbial. The two daughters spoken of are interpreted by some commentators to mean hell and the grave, but it is unnecessary to assign any recondite or metaphorical sense to the expression, beyond the bloodthirsty propensity and the tenacity of hold characteristic of the Leech.

The Horseleech (*Hæmopis sanguisuga*) is very common in all the stagnant waters of Palestine, and our animals frequently suffered much from its attacks, as it is in the habit of entering the nostrils and mouth when they are drinking, and attaches itself firmly to the inside of the nostril, or to the palate, causing much pain and loss of blood. It clings with such tenacity to its hold, that the creatures were almost torn in two in the effort to detach them.

The Medicinal Leech (*Hirudo medicinalis*) is still more abundant, and it was scarcely possible to take up a stone in the little streams without finding two or three adhering to its under surface. There are also several other genera of the Leech family, as *Bdella* and *Trochetia*, common in the waters of Syria. The Leeches, or Bloodsucking Worms, are annelids, with red blood, without visible organs of respiration, but breathing by interior cavities, and a flattened disk or lip round the mouth, by which they attach themselves through suction to any object.

Worm.—Several Hebrew words are thus translated: (1.) *Sás*, occurring only in Isa. li. 8: "For the moth shall eat them up like a garment, and the worm (*sás*) shall eat them like wool," evidently denotes the caterpillar of the clothes' moth. [See Moth.]

(2.) *Rimmah* and (3.) *Tole'ah* are used in various passages together, and apparently interchangeably, more generally for the maggots or caterpillars of insects than for the Earth-worm. Thus of the manna that was kept till the morning, "It bred worms (*tola'im*), and stank" (Ex. xvi. 20). But on the sabbath "it did not stink, neither was there any worm (*rimmah*) therein" (ver. 24). "How much less man, that is a worm? (*rimmah*) and the son of man, which is a worm? (*tole'ah*) (Job xxv. 6). "The worm (*rimmah*) is spread under thee, and the worms (*tola'im*) cover thee" (Isa. xiv. 11). In the passages in Exodus, both words evidently refer to caterpillars or larvæ which feed on putrifying matter.

Tole'ah is frequently used for the Caterpillar: thus, "Thou shalt plant vineyards, but shalt not gather the grapes; for the worm shall eat them" (Deut. xxviii. 39). "God prepared a worm . . . and it smote the gourd, that it withered" (Jon. iv. 7). *Rimmah* is frequently used of the worms or larvæ which feed on dead bodies. "I have said to the worm, thou art my mother" (Job vii. 14). "The worm shall feed sweetly on him" (Jb.

xxiv. 20). "They shall lie down alike in the dust, and the worms shall cover them" (ch. xxi. 26). And describing his own horrible state, the patriarch says, "My flesh is clothed with worms and clods of dust" (ch. vii. 5). Sometimes the Worm is used as a symbol for that which is most despicable and vile: "I am a worm and no man, a reproach of men, and despised of the people" (Ps. xxii. 6). So also, "Fear not, thou worm Jacob" (Isa. xli. 14).

The Worm is also named, both in the Old and New Testaments, as a symbol of the gnawing pain of eternal punishment: "Their worm shall not die" (Isa. lxvi. 24). See also Mark ix. 44, &c. Herod Agrippa "was eaten of worms (σκώληξ), and gave up the ghost" (Acts xii. 23). So Antiochus Epiphanus had been smitten before him, as we learn from 2 Mac. ix. 9, and Josephus records the similar end of Herod the Great. Whether the worms were the cause or the result of the disease, we are not told. In either case they show the loathsome nature of the visitation.

The passage in Micah (vii. 17), "They shall move out of their holes like worms of the earth," signifies rather 'creeping things,' or 'serpents.'

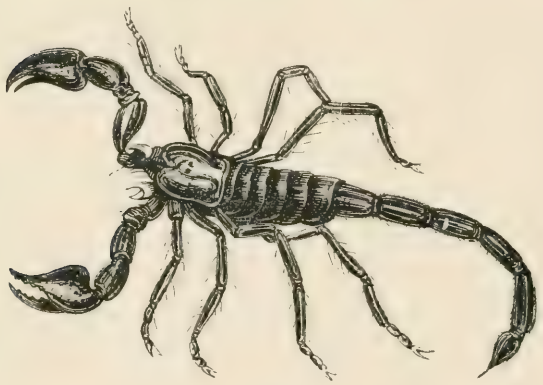
There are several species of Earth-worms (*Lumbricus*) in Palestine, apparently similar to our own; but by far the most abundant of the so-called Worms there are the *Myriapoda* or Millipedes, especially the *Scolopendræ*, which appear to perform similar functions with the Earth-worm in nature, though belonging to a very different order of animal life, and which supply food to many of the birds of the country.

ARACHNIDA.

SCORPION. Heb. *'akrabim*, Gr. σκορπιος.—This venomous creature, common in all warm climates, is mentioned both in the Old and New Testaments. Scorpions are especially abundant in the wilderness of Sinai, where one naturalist has found five distinct species. "Who led thee through that great and terrible wilderness, wherein were fiery serpents, and scorpions, and drought" (Deut. viii. 15). Hence, and from their partiality for ruins, they are spoken of as characteristic of desolation and danger: "Be not afraid of them, neither be afraid of their words, though briers and thorns be with thee,

and thou dost dwell among scorpions" (Ez. ii. 6). Their venomous sting is several times spoken of, and the Apostles were promised immunity from it: "Behold, I give unto you power to tread on serpents and scorpions . . . and nothing shall by any means hurt you" (Luke x. 19). In the vision of St. John, the locusts that came out of the smoke of the bottomless pit "had tails like unto scorpions, and there were stings in their tails." And, "Their torment was as the torment of a scorpion, when he striketh a man" (Rev. ix. 10, 5).

From the fiery and penetrating nature of the Scorpion's sting, the name seems to have been applied to a scourge, which was probably armed with iron points:



SCORPION.

"My father hath chastised you with whips, but I will chastise you with scorpions" (1 Kings xii. 11; 2 Chron. x. 14). When our Lord, offering encouragement to prayer, inquires, "If a son . . . shall ask an egg, will he offer him a scorpion?" (Luke xi. 12) He adopts a Grecian proverb, "A scorpion instead of a perch," *i.e.*, giving, instead of what is useful, that which is both dangerous and repulsive.

The Scorpions belong to the class *Arachnida*, and have much the appearance of a small Lobster, whence they were formerly classed with the *Crustacea*. Their *palpi* or claws are of the proportionate shape and size of those of the Lobster, and are employed for seizing their prey,

which they then dispatch by striking it with the powerful curved claw at the end of their tail, and which secretes an acrid poison. The tail is jointed and of great length, and in running the animal holds it over its back in a threatening attitude, and in this position it always strikes with it, and thus in efforts to escape will sometimes strike its own head and mortally wound itself.

Scorpions are carnivorous, feeding chiefly on beetles and locusts. They swarm in every part of Palestine, and are found in houses, in chinks of walls, among ruins, and under stones, whether in dry or moist situations. It is always necessary before pitching tents to turn up every stone, however small, lest a Scorpion should be secreted; as, when disturbed or roused by the warmth of the camp, these troublesome pests will strike at and sting any person or object within reach. So numerous are they, that in the warmer parts of the country every third stone is sure to conceal one. Eight species have been already described from Palestine, and we found several additional kinds, varying in colour and in size. The largest and most dangerous species is black, and about six inches long. Others are yellow, brown, white, and reddish, and others striped and banded. They lie dormant during the cold weather, but are very easily roused and excited. The young are carried for some days on the back of the female, until they are old enough to provide for themselves.

The sting of the Scorpion is very painful, much more so than that of the Hornet, and our muleteers were several times stung; but suction, and the application of ammonia and sweet oil, reduced the swelling and pain in two or three hours. I have known an instance of a man dying from the effects of a Scorpion sting, which he had received in the throat when leaning against a wall in which the creature was secreted.

Spider.—Two words are thus translated: (1.) *'accabish*, "Whose hope shall be cut off, and whose trust shall be a spider's web" (Job viii. 14). "They hatch cockatrice' eggs, and weave the spider's web" (Isa. lix. 5). In both passages the flimsy and perishing nature of the schemes and designs of the wicked and the hypocrite are compared to the fragile texture of the Spider's web, demolished with a touch, notwithstanding all the artifice

and cunning employed in its construction, and the wily stratagems devised to gain their ends.

(2.) In Prov. xxx. 28, *Semamith* is rendered Spider: "The spider taketh hold with her hands, and is in kings' palaces." This word, which does not elsewhere occur, is by some supposed to represent the Gecko, a species of Lizard, which has the power of walking on an inverted surface. [See LIZARD.] It may, however, stand for the Spider, which uses its feet so nimbly to run up its web, and to cling to any surface, that they may well be termed hands,' while no recess, even in a palace, is secure from its intrusion.

The number of species of Spiders is almost countless. About 700 species are known in Britain, and the number in Palestine appears to be quite as great. Among them is one very extraordinary species, the Mason Spider (*Mygale cementaria*), which excavates a home in the earth, lines it, and forms a trap-door with a silken hinge, which closely fits the aperture, and is constructed of webs with earth firmly imbedded in them, and agglutinated. The door fits so closely, and so exactly resembles the surrounding soil, that detection is impossible. Some of the spiders in the Holy Land are said to have a slightly poisonous bite.

INSECTA.

PARASITA.

LICE, Heb. *chinnim*, from a root signifying to establish or fix, occurs only in the record of the third great plague of Egypt: "And the Lord said unto Moses, Say unto Aaron, Stretch out thy rod, and smite the dust of the land, that it may become lice throughout all the land of Egypt. And they did so; for Aaron stretched out his hand with his rod, and smote the dust of the earth, and it became lice in man, and in beast; all the dust of the land became lice throughout all the land of Egypt" (Ex. viii. 16, 17). The plague is referred to in Psalm cv. 31.

Many ingenious arguments have been put forth to prove that 'Gnats,' not 'Lice' (*Pediculi*), are intended

but the derivation, the Rabbinical commentators, and Josephus and Bochart—all conclusively support the translation of our version. Gnats or mosquitoes rise from the waters, not, like lice, from the dust, and would more naturally be included in the plague of flies than in this; nor can gnats be said to be "in man and in beast," though they may sting them.

Vermin of all kinds are notoriously abundant in the East—none more so than these disgusting insects, which are harboured everywhere by the filthy habits of the Bedouin and the Fellahin, or country people. But the Egyptians had by no means the Arab indifference to vermin, and no plague could have been more loathsome than this to that people. So scrupulous were they in their cleanliness that, we are told by Herodotus, the priests shaved their heads and persons every third day lest they should harbour any lice, and so be polluted when performing their religious rites. This, therefore, was more than merely a loathsome visitation—it rendered the whole of that superstitious people ceremonially polluted.

Aphaniptera.

Flea, Heb. *par'osh* (*Pulex irritans* of naturalists), is only mentioned twice in Scripture, where David, addressing Saul, speaks of his pursuit being after an object as contemptible as a flea: "After whom is the king of Israel come out? . . . . after a dead dog, after a flea" (1 Sam. xxiv. 14). "The king of Israel is come out to seek a flea, as when one doth hunt a partridge in the mountains" (xxvi. 20), where the Flea is named as the most insignificant of living creatures. Fleas are the great pests both of the inhabitants and of travellers in the Holy Land, and it is impossible to keep free from them. They are the only vermin towards which the natives appear to have a thorough animosity, and which can disturb even Moslem equanimity. Their numbers force them to change their camps more frequently than they otherwise would; and if the luckless traveller incautiously pitches upon the site of a Bedouin camp, which has been deserted even for a month, he is soon driven away by the swarms of fleas, which rise from the dust and the refuse stubble on the ground where they are concealed in myriads.

Coleoptera.

Beetle.—The Hebrew word *chargol*, which occurs only once, in Lev. xi. 21, 22, is thus rendered in our version: "These may ye eat of every flying creeping thing that goeth upon all four, which have legs above their feet, to leap withal upon the earth. . . . the beetle after his kind." The other three permitted as food are 'the locust,' 'the bald locust,' and 'the grasshopper.' It is evident that some species of Locust or Orthopterous insect is intended [see Locust], for the Beetle has *not* legs above its feet to leap withal, as the Locust tribe has, nor is it ever, like the Locust, used as food by man. Beetles are very numerous in Palestine, the climate being more suitable for Coleopterous insects, or Beetles, than for Lepidopterous, or Butterflies. Upwards of 400 species have been described by French naturalists from that country, and some of the larger Flower Beetles, or *Buprestidæ*, are very beautiful, with brilliant metallic colouring.

Orthoptera.

Locust.—Under this general heading we may consider the various species of insects denoted by the Hebrew words which are rendered in our version Beetle, Canker-worm, Caterpillar, Grasshopper, Locust, Bald Locust, and Palmerworm. In striking contrast with the paucity of Biblical references to the other families of the insect world, are the frequent and varied mention of the Locust tribe, its habits, appearance, and ravages; and the fact that no less than nine Hebrew words almost certainly, and several others possibly, are employed to denote either different species or various stages of growth of this destructive insect.

Locusts belong to the order of insects termed *Orthoptera*, having their fore-wings straight, membranous or semi-coriaceous, and the hind-wings very large and wide, and folded longitudinally like a fan under the fore-wing. The most familiar example of the order in England is the Common Grasshopper. Upwards of forty species of Orthopterous insects have already been ascertained from Palestine. All have the mouth furnished

with cutting mandibles, with which they devour the herbage of plants, and most of them are exclusively vegetable feeders.

They are divided into two groups: the Runners (*Cursoria*), unclean under the Mosaic law, and the Leapers (*Saltatoria*), 'having legs above their feet to leap withal,' which were permissible as food. To this group, whose posterior legs of great strength and length enable them to move on the ground by leaps, all the scriptural terms are referable. They are divided by naturalists into three families, of which the Cricket, the Grasshopper, and the Migratory Locust may be respectively taken as types.

It is unnecessary to give here the scientific names of all the species enumerated from Palestine, but among them are the Mole-cricket (*Gryllotalpa didactylus*), a House-cricket, several species of *Truxalis*, distinguished from other locusts by their long pyramidal head and sword-shaped, straight antennæ, very many species of *Locusta* or Grasshopper, and still more of the families *Acrydites* and *Gryllus* proper, of which the most common and destructive in the Holy Land are *Acrydium lineola*, *Acrydium peregrinum*, and *Œdipoda migratoria*. These two latter are the species most dreaded from their numbers, and all the specimens I obtained from the swarms which devastated the country in 1865 belonged to one or other of these, to which the name of the Common or Migratory Locust has been ordinarily applied. The former species (*Acrydium peregrinum*) appeared to predominate.

The Israelites, who had good reason to observe the habits of the locusts from the terrible visitations with which they were from time to time afflicted, appear to have been familiar with the singular metamorphoses which this class of insects undergoes. Their changes are very different from those of Beetles, Butterflies, and Moths; and consist simply in the increase and development of the fore and hind wings, while during all stages of their growth they are equally voracious. After their emergence from the egg they pass through three stages of existence—the *larva*, *pupa*, and *imago*, or perfect insect; but, unlike the Moth, they have no chrysalis or dormant state, being more voracious in the pupa than in any other state.

The eggs are deposited in April or May, and hatched

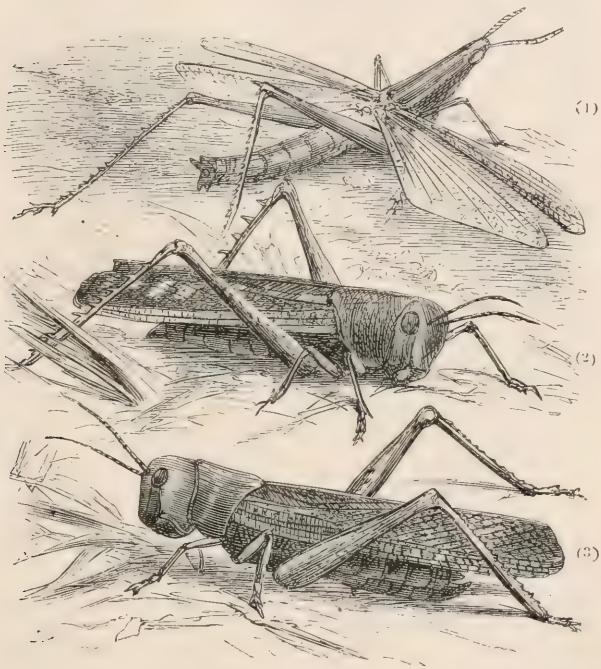
in June. The young have been observed as early as the 18th of May. The larvæ which emerge from these eggs have no wings. In the pupa state they are only rudimentary or little stumps, with the wings enclosed in cases. In another month they cast this pupa or nymph skin, and as soon as their wings are dry and expanded mount in clouds into the air. In all stages of growth, they are largely eaten by the natives, and form a very palatable food.

Besides these extraordinary visitations, the drier parts of the country are at all seasons fully stocked by the ordinary and less gregarious species, which spring up with a drumming sound before every step of the traveller, expanding suddenly their brightly-coloured posterior wings, which are in the different species of every hue—scarlet, crimson, bright blue, dark blue, yellow, white, green, and brown. In the Migratory Locust they are a pale yellow.

1. Proceeding to examine the Hebrew words in detail, we find *Arbeh*, LOCUST, almost always thus translated in our version. The name is derived from a root signifying 'to multiply,' and is well applied to these creatures, which at times so marvellously increase. *Arbeh* is the word used for the locusts in the description of the eighth plague of Egypt: "They shall cover the face of the earth, that one cannot be able to see the earth: and they shall eat the residue of that which is escaped, which remaineth unto you from the hail, and shall eat every tree which groweth for you out of the field: And they shall fill thy houses, and the houses of all thy servants, and the houses of all the Egyptians . . . . when it was morning, the east wind brought the locusts. . . . They covered the face of the whole earth, so that the land was darkened; and they did eat every herb of the land, and all the fruit of the trees which the hail had left: and there remained not any green thing in the trees, or in the herbs of the field, through all the land of Egypt" (Ex. x. 5, 6, 13, 15).

It is also mentioned in Lev. xi. 22, as permissible for food along with *sal'am* (bald locust), *chargol* (beetle), and *chagab* (grasshopper). In Joel i. 4, we find it mentioned along with three others—*gazam* (palmerworm), *yelek* (cankerworm), and *chasil* (caterpillar)—denoting either different creatures, or different stages of growth.

It is expressed in the New Testament by ἀκρὶς, the general Greek term for Locust, and, excepting in four passages, is always rendered 'locust' in our Bible. In these it is given 'grasshopper': "The Midianites . . . came as grasshoppers for multitude" (Judg. vi. 5, and vii. 12); "Canst thou make him afraid as a grass-



LOCUSTS:
(1) TRUXALIS. (2) ACRIDIUM PEREGRINUM. (3) ŒDIPODA MIGRATORIA.

hopper?" (Job xxxix. 20) "They are more than the grasshoppers, and are innumerable" (Jer. xlvi. 23).

In almost every passage in which *arbeh* occurs, reference is made either to its devastating or to its multiplying powers: "The locust shall consume it" (Deut. xxviii. 38). "If there be in the land . . . locust, or if there be caterpiller" (1 Kings viii. 37; 2 Chron. vi. 28). [See also Ps. lxxviii. 46 · cv. 34.] "I will restore to you the

years that the locust hath eaten" (Joel ii. 25). "Make thyself many as the locusts" (Nah. iii. 15).

From these expressions it is evident that one of the migratory species is intended—either *Œdipoda migratoria* or *Acrydium peregrinum*, the species which still ravage the East from time to time. The former of these is the best known in Europe, as it is common in the South of France, and is occasionally taken in England. On one occasion, in the summer of A.D. 1748, this Locust did considerable damage near Bristol, and in Shropshire and Staffordshire, stripping the trees as bare as at Christmas.

The statement, that the plague of locusts arrived in Egypt with an east wind, is confirmed in an interesting manner by modern observations. They are noticed always to come from the east into Egypt, and from the south and south-east into Syria, being in fact nurtured in the wilds of Arabia, and nothing destroys them until they are driven by the wind into the sea; as was the case when, on the intercession of Moses, the west wind drove them into the Red Sea.

2. *Sal'am*, BALD LOCUST, only occurs in Lev. xi. 22, where the description proves it to be a species of Locust. It is, perhaps, derived from a Chaldee word, signifying to devour, and is said in the Talmud to have a smooth head, whence the English rendering. It is also stated to prefer the rocks, which might be true of certain species of true *Locusta*, or Grasshoppers; but from the statement of the peculiar characteristic of the head, the name may with some reason be assigned to the genus *Truxalis*, very common in the Holy Land, and which has a long, narrow, smooth head, and straight, sword-shaped antennæ.

3. *Chargol*, BEETLE of our version, but evidently a species of Locust from the description given of it, occurs only in Lev. xi. 22, as one of the clean animals allowed for food. The Jewish writers interpret it of the Grasshopper, others of the *Truxalis*, which they state is insectivorous. This, however, is a mistake, as we ascertained by observation that the *Truxalidæ* live on plants. There is no satisfactory clue by which we can identify the exact species intended.

4. *Chagab*, GRASSHOPPER, of Lev. xi. 22. From which passage we learn that it must have been a saltatorial Orthopterous insect, with legs to leap withal, and not

the young of any other species. From 2 Chron. vii. 13, where alone it is translated locust—"If I command the locusts (*chagabim*) to devour the land"—we learn that it was destructive. In the other three passages where it occurs, our translators have 'grasshopper': "There we saw the giants, the sons of Anak, which come of the giants: and we were in our own sight as grasshoppers" (Numb. xiii. 33). "The grasshopper shall be a burden" (Eccles. xii. 5). "It is he that sitteth upon the circle

PALMERWORM, OR YOUNG OF LOCUSTS.

of the earth, and the inhabitants thereof are as grasshoppers" (Isa. xl. 22).

From these places it would appear that the *chagab* was a small species, and perhaps, in contrast with the larger locusts, 'grasshopper' is as near a translation as could be given in our language. There are many small species of locusts, some of them very brilliantly coloured, which have been already alluded to. The word is used in the Talmud as a collective name for the locust tribe,

of which the Rabbis say there are 800 species, and it is impossible for us to identify it specifically with any one insect.

5. *Gazam*, Palmerworm.—"That which the palmerworm hath left, hath the locust eaten" (Joel i. 4). "I will restore to you the years that the locust hath eaten, the cankerworm, and the caterpiller, and the palmerworm, my great army which I send among you" (ch. ii. 25). "When your gardens and your vineyards and your fig trees and your olive trees increased, the palmerworm devoured them" (Amos iv. 9). The word is derived from a root signifying to cut off, and is translated 'caterpiller' in the Septuagint and other old versions. They are probably correct, and a Caterpillar was doubtless intended by the 'Palmerworm' of our translation. Some commentators consider it to be a species of Locust from the description of its depredations in Amos. Caterpillars, like the Locust, frequently make havoc among the fruit trees. From the description in Joel, where *gazam* precedes the Locust in its ravages, there s some ground for the opinion of many critics that it denotes the Migratory Locust in its larva state, before its wings are grown, in which condition it is not less destructive. It is probably used in as vague a sense as the term Caterpillar among ourselves, applied to the larva of any insect.

6. *Yelek*, Cankerworm.—This is the translation given in five passages—Joel i. 4, and ii. 25; also Nah. iii. 15, 16: "The sword . . . shall eat thee up like the cankerworm. Make thyself many as the cankerworm, make thyself many as the locusts." "The cankerworm spoileth and fleeth away." In three places it is rendered 'caterpiller': "He spake, and the locusts came, and caterpillers, and that without number" (Ps. cv. 34). "I will fill thee with men, as with caterpillers" (Jer. li. 14). "Cause the horses to come up as the rough caterpillers" (ver. 27). The signification of the name is the licker, 'that which licks up the grass of the field;' and, from its position in the description of the Locust plague in Joel, it may represent not any particular species, but the larva or caterpillar state of the Locust, in which it is even more destructive than in its winged state. After the Winged Locust has left, the young larvæ appear, and consume all that has escaped the

former. After it has devoured everything, it assumes its wings, or as Nahum expresses it, "spoileth and fleeth waay."

7. *Tzelatzal*, LOCUST, occurs in Deut. xxviii. 42: "All thy trees and fruit of thy land shall the locust consume." The word means 'the tinkler,' and is elsewhere applied to cymbals, being here given to some insect from the well known stridulous sound of its wings, not unlike the jingling of some musical instruments. All we can say is, that it seems to represent an insect destructive to foliage and herbage. (See Appendix, Note E.)

8. *Gób*, LOCUST.—"As the running to and fro of locusts shall he run upon them" (Isa. xxxiii. 4). "Behold, he formed grasshoppers [Heb. *gobaim;* marg. 'green-worms'] in the beginning of the shooting up of the latter growth" (Amos vii. 1). "Thy captains as the great grasshoppers [Heb. *gobaim*], which camp in the hedges in the cold day, but when the sun ariseth they flee away, and their place is not known where they are" (Nah. iii. 17). There is nothing in any of these passages to indicate any particular species, or whether the larva or perfect state of the insect is intended, though commentators incline to the former. The habit of halting at night is common to the whole tribe, both in its apterous and in its winged state.

9. *Chasil*, CATERPILLAR. — Mentioned always along with the Locust in Solomon's prayer at the dedication of the Temple; also by the prophet Joel, and in Ps. lxxviii. 46: "He gave also their increase unto the caterpiller, and their labour unto the locust." So Isa. xxxiii. 4: "Your spoil shall be gathered like the gathering of the caterpiller." The Hebrew word signifies 'the consumer,' and probably denotes the Locust in the larva or pupa state, and not any particular species.

The allusions to the habits of locusts in Scripture are very numerous. Their march is magnificently described by the prophet Joel: "A day of darkness and of gloominess, a day of clouds and of thick darkness, as the morning spread upon the mountains: a great people and a strong; . . . the land is as the garden of Eden before them, and behind them a desolate wilderness; yea, and nothing shall escape them. The appearance of them is as the appearance of horses; and as horsemen so shall

they run. Like the noise of chariots on the tops of mountains shall they leap, like the noise of a flame of fire that devoureth the stubble, as a strong people set in battle array. Before their face the people shall be much pained: all faces shall gather blackness. They shall run like mighty men; they shall climb the wall like men of war; and they shall march every one on his ways, and they shall not break their ranks. . . . They shall run to and fro in the city; they shall run upon the wall, they shall climb up upon the houses; they shall enter in at the windows like a thief" (Joel ii. 2–7, 9).

All these characteristics are illustrated by the accounts of modern observers—their voracity and the utter devastation and destruction which marks their track ('behind them a desolate wilderness')—famine and pestilence—their appearance in clouds which darken the air, and the noise they make in their flight, compared by one traveller to the roar of a cataract overhead. The prophet Joel compares them to horses; and to this day the same metaphor is familiar in every Arab camp. One of my Arabs gave me a long list of reasons why the Locust is like the horse or horseman. They were very ingenious, and often amusing; but, probably because he himself belonged to a tribe of notorious freebooters, he did not add the most forcible point of resemblance—their sudden appearance in the cultivated lands like a Bedouin raid, their sweeping advance and the desolation which marks their track. Their straight onward march was one of his points of similarity.

Of this we had a striking instance during the terrible visitation of 1864–5. On arriving at the banks of the Jordan, the swarms, then in a larva or wingless state, marched steadily up the trees which fringe the river. These they denuded of every strip of foliage, and even of the tender bark, not sparing even the resinous tamarisk. As they had stripped the twigs they crept onward, pushed by the hordes behind, and fell by myriads into the rapid stream. Few out of many escaped to the farther bank, for the scene below was indeed marvellous. The river was full of fish. In serried ranks, with noses up and mouths open, rested just on the surface shoals of the common Jordan fish (*Scaphiodon capoëta*), in quiet anticipation of the feast, which was literally for hours dropping into their mouths.

By thousands the locusts disappeared as they fell—even before they had time to touch the water they were seized.

As in the visitation of Egypt, so now it is found that the only means of deliverance from the plague is when a strong wind drives them into the sea; and even then, as mentioned by Joel, their dead bodies taint the air and induce pestilence. This was the experience of the year 1865, as well as the record of Hasselquist, more than a century ago. In their resistless march, which is without leaders, but all by a common impulse ('the locusts have no king') they climb walls, enter houses by doors or windows, just as they did in the Egyptian plague, and as they are described by Joel, and even gnaw the woodwork of the rooms. The helplessness of the Locust against the wind is mentioned by the Psalmist: "I am tossed up and down as the locust" (ch. cix. 23). This refers to the Flying Locust. Modern observers tell us how their squadrons are tossed up and down, and whirled round and round by the ever-varying currents of the mountain winds.

With respect to the successive visitations of locusts, described by Joel, Dr. Pusey, in his commentary on the minor prophets, is very decidedly of opinion that the names mentioned—*gazam*, *arbeh*, *yelek*, and *chasîl*—must be taken of four distinct species succeeding one another, and not for successive stages of the same animal, and that '*gôb*,' the 'creeper,' is the only word which denotes the unwinged state. He adds, that the use of these names of locust elsewhere in Holy Scripture contradicts the theory that they designate different stages of the growth of the same creature; and that they are named elsewhere together as distinct and winged. He also, most convincingly, refutes the theory held by some, that the different words are some of them merely poetical names of the Locust. 'It would be plainly gratuitous to assume that the Hebrew names, although epithets, describe only the genus in its largest sense, and are not names of species.' Observation on the spot leads me, however, to venture even against such very high authority, to support the view that different stages of the insect life are designated, at least by *gazam* and *yelek*.

Joel, in his comparison of the Assyrian invaders to the plague of locusts, calls them 'the *northern* army'

This must be taken not of the locusts, but strictly of the Assyrians, who are always spoken of as invading Judah on the north. The locusts always come with the wind from the country of their origin; and this, as all observers attest, is with a south or south-east wind into Palestine, with a west wind into Persia, and with an east wind into Egypt. Similarly the Assyrian hordes would come from *their* country. Those that devastate South-eastern Europe generally come with a north or north-east wind from the Ukraine; but we have no record of such flights attacking Palestine.

The following account of the last visitation of locusts in the year 1865, kindly given me by the Rev. F. W. Holland, contains so many minute corroborations of the scriptural accounts of these insects that I transcribe it in his own words:—

"On April 5, when we were encamped at the foot of Jebel Musa (Mount Sinai), about 10 A.M., the locusts were first seen by us. A light breeze from the north-west was blowing, and they came up in its face from the south-east, flying steadily against it, many of them at a great height. They soon increased in number, and, as their glazed wings glanced in the sun, they had the appearance of a snow-storm. Many settled on the ground, which was soon in many places quite yellow with them, and every blade of green soon disappeared. For two days the flight passed over our heads undiminished in number. They did not appear to be able to fly much against the wind, their wings being blown across if they got their tail to leeward, and then they came spinning down to the ground: when they alighted, they always faced the wind. On the third morning the flight had diminished much in numbers, but many were still passing over, and as we walked along, clouds of them rose before us. They were difficult to catch except in the early morning, when they seemed benumbed with cold before the sun had risen. We found them all over the peninsula wherever we went.

"In vain the Arabs, who had charge of the convent gardens, beat iron pans, and shouted, and brushed them away from the beds with palm leaves; they swarmed in, till every green thing was eaten. The little rock-chat made frequent dashes at them as they flew past.

and each time brought one to the ground and ate it In Syria I frequently saw kites and hawks feeding on them on the wing.

"When towards the end of April we approached the shores of the Gulf of Akabah, we found the locusts making for the sea, and I watched them actually walking across the wet sands into the water, and thus committing suicide in the most wholesale manner. Those locusts which we saw in Sinai were ready to lay eggs, and the time of the young ones hatching out was more dreaded than the devouring flight of old ones.

"The locusts appeared to have invaded Syria about the same time that they arrived in Sinai.

"On the 18th of May, near Beyrout, I first saw the young ones. We came upon an occasional black patch in the grass, about the size of the crown of a hat. These were young locusts, about the sixth of an inch long, which dispersed on every side as one approached them, but collected together after we had passed. In a few days apparently they begin their onward march.

"When about one-third of an inch long they take to the beaten tracks, where they can follow each other in a long line, the breadth of the line varying according to the character of the path; at this stage they always hop, never walk. They feed as they go along, I suppose; but I nearly always saw them on the move. As they grow older they become more yellow; when quite young they are nearly black, but it is some time before their wings appear. I have seen troops of them a mile in length, and twenty or thirty, or even fifty yards in breadth. As one meets them they file off on either side and leave a clear path; but if one of them happens to be injured, the others immediately fall upon it and devour it.

"When they approach a village the people turn out, light fires round their fields, dig trenches and fill them with water, and endeavour to beat them back with their cloaks and the branches of trees; but the locusts appear to prefer death to a retreat. They swarm up the trees and strip them of every leaf; olives and even oaks are not spared by them, but they attack the apricots and mulberries first. They frequently moult during their growth, but quickly perform this operation, and emerge in their new skin more hungry than ever.

"Though when quite small they always hop, when larger they only walk, unless disturbed, until they get their wings, when for a time they take springs into the air and fly for a short distance, and afterwards take to flying altogether. When a flight appears, the natives climb up the trees with drums, kettles, and horns, &c.; they shout and make a noise to prevent their settling, but often it is in vain; and sad it was to see the poor people beaten by the overwhelming flights, and hopelessly wringing their hands over their little gardens overrun by the locusts, which crunched up every green thing.

"I saw a flight in Syria moving *with* a strongish wind, but they could not fly for more than 100 or 150 yards without their wings becoming entangled, when they fell to the ground and righted themselves for a fresh start. At Nazareth they had even invaded the houses; and, before I could sit down in Mr. Zeller's house, the servant had to take the sofa cushions into the yard and sweep away the locusts. In our tents we had to tie up our heads in our handkerchiefs, and use various devices for keeping the locusts out of our beds, but we generally had some bedfellows. The sea shore in many places was covered with their dead bodies.

"The Arabs in Sinai never eat them; but they told me that the Arabs near Mecca did so, and I heard of their being eaten in Beyrout by some of the Arabs and black servants there, and also by the Arabs on the east of the Jordan."

To these observations of my friend, Mr. Holland, I may add, that I found that locusts are eaten by the Jehalin, a tribe in the south-east of Judæa, by most of the tribes in the Jordan valley, and by the Beni Hassan in Gilead. I found them very good when eaten after the Arab fashion, stewed with butter. They tasted somewhat like shrimps, but with less flavour. When we consider how easily and invariably locusts can be procured in the Judæan wilderness, we find no difficulty in the account of the fare of the Baptist, and we see how idle was the controversy raised on the conjecture that the 'locusts' of Matt. iii. 4 meant the fruit of the Carob or Locust tree.

HOMOPTERA.

Crimson-Worm.—The Hebrew *tola'ath*, meaning the Crimson-*worm*, is always translated in our version by 'crimson' (Isa. i. 18), or by 'scarlet' elsewhere, as in many passages in Exodus, describing the colours used in draping the tabernacle; in Lam. iv. 5, and Neh. ii. 3, the word 'worm' being omitted, as in most passages the dye obtained from it, and not the worm itself, is intended.

The animal is a *cochineal*, an Homopterous insect (*Coccus ilicis*), of which the male, in its *imago* state, is winged, and the female, which is more than double its size, is wingless, attaching itself to the leaves and twigs of the Syrian Holm-oak (*Quercus coccifera*), from the juices of which it derives its sustenance. From the female alone the dye is procured. It is about the size of the kernel of a cherry, and of a dark-red colour, but when dried shrivels up to less than the size of a grain of wheat. It is very common in Palestine, and still occasionally employed in dyeing, though commercially it has been supplanted by a nearly-allied species, *Coccus cacti*, a native of Mexico, which lives on the cactus, or prickly pear, and has been introduced with that plant into all the countries bordering on the Mediterranean, and is cultivated in several parts of the Holy Land, as at Nablous, the ancient Shechem. Its Arabic name is *kermez*, whence our word 'crimson' has ultimately been derived.

HYMENOPTERA.

Ant. Heb. *nemalah*.—The Ant is twice mentioned in the Book of Proverbs: in one passage it is held forth as a pattern of industry, in the other as a model of wisdom. As a pattern of industry: "Go to the ant, thou sluggard; consider her ways, and be wise: which having no guide, overseer, or ruler, provideth her meat in the summer and gathereth her food in the harvest" (Prov. vi. 6–8). As a model of wisdom: "There be four things which are little upon the earth, but they are exceeding wise: the ants are a people not strong, yet they prepare their meat in the summer" (ch. xxx. 24, 25).

The natural interpretation of both these passages is,

that the Ant proves her industry and wisdom by storing up in summer a supply for winter use. Many difficulties have been raised respecting this, from the fact that the Ant tribe are, excepting in hot climates, for the most part dormant in winter, and that their food is not corn, but flesh, insects, and saccharine matter from trees, which cannot be stored. They do, however, fill their nests with all kinds of substances, chiefly for the purpose of lining them and keeping them free from damp; and I have not only seen them in the Holy Land busily engaged in carrying quantities of barley to hoard, but have found the nests full of corn, mingled with chaff, grass, seeds, and all sorts of dried vegetable husks.

Elsewhere, they have been observed, not only to carry seeds to their nests, but, after the rains, when the moisture has penetrated their dwellings, to bring them up again to the surface to dry. The ancients were familiar with the fact that the Ant stored up food for winter consumption; and who that has watched the incessant activity of these little creatures, issuing in long files from their labyrinths by a broad beaten track, and gradually dispersing in all directions by pathways that become narrower and fainter as they diverge, while a busy throng uninterruptedly conveys back by the same paths every object which they are able to drag with their powerful forceps, would not at once arrive at the same conclusion?

The language of the Wise Man is in accordance not only with the universal belief of his time, but with the accurately ascertained facts of Natural History. Contrary to its habits in colder climates, the Ant is not there dormant through the winter; and among the Tamarisks of the Dead Sea, it may be seen in January actively engaged in collecting the Aphides and saccharine exudations, in long files passing and repassing up and down the trunk. Two of the most common species of the Holy Land (*Atta barbara*, the black ant, and *Atta structo*, a brown ant) are strictly seed feeders, and in summer lay up large stores of grain for winter use. These species are spread along the whole of the Mediterranean coasts, but are unknown in more northern climates. Hence writers who were ignorant of any ants beyond those of their own countries have been presumptuous enough to deny the accuracy of Solomon's statement. (See note F.)

Beyond the now established fact of the Ant in the East

laying up food for winter, modern research has proved the wisdom and instinct of these little creatures to be far in advance of that of any other known insect, not even excepting the Bee. Their skill in architecture is wonderful and varied. Some species build their labyrinths of pellets of kneaded clay, arched and fitted like the most skilful masonry; others employ rafters and beams for their roofs; others excavate the trunks of trees. They fortify their passages against rain and enemies, closing them every night, and opening them in the morning. Like the bees and wasps, their communities are composed of males, females, and neuters, the latter being both the workers and the rulers. These receive the eggs, watch over them with unceasing care, bring the *larvæ* to enjoy the heat of the sun, and then carry them back to their chambers as the day declines. They gather food for them, and supply them incessantly; they tear the cases away from the cocoons when the perfect insect is ready to emerge: they spread and dry the wings, which the males and females alone possess, and that only in the perfect state; they afterwards tend the females, feed them, wash them, and keep continual guard. They rear myriads of *aphides*, or small plant parasites, from the egg, to supply food for the young, and keep them, like cows. Some species, as the Amazon Ants, organize regular marauding expeditions, attack the colonies of other ants, and carry off the larvæ to be their slaves. In fact, had not the habits of the ants been verified by the observations of the most careful and truthful naturalists, they would have been incredible. Truly, indeed, did Agur pronounce them to be "exceeding wise."

Ants are Hymenopterous insects of the family *Formica*, comprising many genera, living always in communities. The most important genera are *Formica*, without a sting, and *Myrmica*, with a sting. The species are very numerous, and the family is world-wide in geographical distribution. We collected more than a dozen different species in Palestine—a very small proportion of the number that must exist there—varying in architecture, size, colour, and habits. One species was about an inch in length.

Hornet. Heb. *tzir'ah.*—The Hornet, about the translation of which there is no question, is mentioned in

Scripture as an instrument in God's hand for the punishment and expulsion of the Canaanites: "I will send hornets before thee, which shall drive out the Hivite, the Canaanite, and the Hittite, from before thee" (Ex. xxiii. 28). "The Lord thy God will send the hornet among them, until they that are left, and hide themselves from thee, be destroyed" (Deut. vii. 20). "I sent the hornet before you, which drave them out from before you" (Josh. xxiv. 12).

Hornets were abundant in the Holy Land, as we may infer from the name Zoreah, or 'place of hornets' (Josh. xv. 33), and they are frequently mentioned by other writers. Instances are on record in profane history where hornets have multiplied to such a degree as to become a pest to the inhabitants. The furious attack of a swarm of hornets drives cattle or horses to madness, and has even caused the death of the animals. From the terror they inspire, their attacks may be spoken of in a metaphorical sense, like the Greek and Latin *Æstrus*, or Gadfly, to signify the panic and alarm with which the approach of the hosts of Israel would inspire the Canaanites.

All hornets are classed with the Wasp tribe (*Vespæ*), and are only distinguished by their greater size. The English Hornet is well known, and differs from the Wasp not only by its size, but by its mode of architecture—the Hornet's nest being suspended from a beam or stone by a pillar of papier-maché, with an umbrella-shaped shield of the same material over the combs, which are suspended horizontally one under the other. The communities are much smaller than those of wasps.

In the Holy Land we found four species, all very common, but none of them identical with our Hornet. Two constructed nests after the fashion of our species, and the other two made very large nests underground or in cavities of rocks, with combs of great size placed horizontally. We found one comb eighteen inches in diameter. These species were decidedly larger than ours, but we did not find them ready to attack, unless provoked. When, however, any of our horses had accidentally trodden on a nest, it was necessary to retreat with all speed, for the attack of the enraged insects at once caused a stampede throughout the camp.

Bee. Heb. *debórah*.—The Honey Bee and honey are

frequently mentioned in Scripture, and bees were from a very early epoch reclaimed and kept in hives, as well as sought for among the rocks. The Hive Bee of Palestine much resembles our own *Apis mellifica*, and still more closely the Hive Bee of Italy and Southern Europe (*Apis ligustica*), but is decidedly smaller, and of a much lighter colour. The swarms or colonies are also generally more numerous, and the cells of the combs are, of course, a little smaller, while the combs themselves are frequently of great size and weight.

It is the *Apis fasciata* of Latreille; and now, as of old, is quite as abundant in a wild state as reclaimed. Indeed the wild bees, of precisely the same species, are far more numerous than their hived relatives, and the greater quantity of the honey sold in the south of Palestine is obtained from wild swarms.

Most of the allusions to bees in Scripture refer to these unreclaimed stocks, which, when robbed, attack their plunderers with great fury. In some parts of India so enormous are the swarms of wild bees, that there are ravines which it is impossible to traverse owing to the fury of their attacks. "The Amorites, which dwelt in that mountain, came out against you, and chased you, as bees do" (Deut. i. 44). "They compassed me about like bees" (Ps. cxviii. 12). "The Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt, and for the bee that is in the land of Assyria" (Isa. vii. 18).

In this passage allusion appears to be made to the well known custom of arresting bees by loud sounds, a custom which has come down from the earliest times, and is practised among ourselves in the tinkling and jingling of iron utensils to induce a swarm to settle when it has left the hive. The word 'hiss' alludes to the call to attention universally used in Eastern countries, which, instead of 'hallo' or 'hey,' is always 'hist' or 'hiss.'

The abundance of bees of old is attested by the frequent mention of the Land of Promise as "a land flowing with milk and *honey*" (Deut. viii. 8, &c.). Few countries are more admirably adapted for bees than this, with its dry climate, and its stunted but varied flora, consisting in large proportion of aromatic thymes, mints, and other labiate plants, as well as of crocuses in spring; while the dry recesses of the limestone rocks everywhere afford

shelter and protection for the combs. Thus, the rocks are generally spoken of as the treasure houses of the bees: "With honey out of the rock should I have satisfied thee" (Ps. lxxxi. 16). Wild honey is also found in trees. Thus, "All they of the land came to a wood; and there was honey upon the ground. And when the people were come into the wood, behold the honey dropped" (1 Sam. xiv. 25, 26).

In Judges xiv. 8, we read of a swarm of wild bees taking up their abode in the carcase of the lion which Samson had slain, upon which he propounded his riddle: "Out of the eater came forth meat, and out of the strong came forth sweetness." We must not suppose that the carcase was a putrid and corrupt mass, for in the dry season the heat will speedily render a carcase in that climate a mere mummy, without any offensive smell until it is moistened, and the ants speedily clear away all the softer parts of the body, if any are left by the vultures, so that merely the skeleton and hide would remain. Even in this country, wrens and sparrows have been known to make their nest in the body of an exposed crow or hawk.

In the wilderness of Judæa, bees are far more numerous than in any other part of Palestine, and thus honey was part of the homely diet of the Baptist in the desert, as it is to this day among the Bedouin, who squeeze it from the comb and store it in skins. Such stores the men possessed who petitioned Ishmael for their lives on that account: "Slay us not: for we have treasures in the field . . . of honey" (Jer. xli. 8).

Honey was from the earliest times an article of commerce from Palestine. It was among the delicacies sent down by Jacob with his sons to the governor of Egypt (Gen. xliii. 11), and is mentioned by Ezekiel among the commodities exported to Tyre: "Judah, and the land of Israel, they were thy merchants: they traded in thy market . . . honey" (ch. xxvii. 17). It is probable that in several passages honey (Heb. *debash*) stands for the Arabic '*dibs*,' the sweet syrup, made by boiling down the juice of the grape to the consistency of treacle; but in most instances bees' honey is undoubtedly intended. Wax was also employed for various purposes, but not, so far as we know, for candles. It was an ingredient in various ointments and perfumes.

The method of keeping domesticated bees has probably not varied from the earliest times, and they are reared, especially in Galilee, in great numbers. The hives are very simple, consisting of large tubes of sun-dried mud, about eight inches in diameter, and four feet long, closed with mud at each end, having only an aperture in the centre, large enough for two or three bees to pass at a time. The insects appear to frequent both doors equally. These tubes are laid in rows horizontally and piled in a pyramid. I counted one of these colonies consisting of seventy-eight tubes, each a distinct hive. Coolness being the great object, the whole is thickly plastered over with mud, and covered with boughs, while a branch is stuck in the ground at each end, to assist the bees in alighting. At first we took these singular structures for ovens or hen-houses. The barbarous practice of destroying the swarms for their honey is unknown. When the hives are full, the clay is removed from the ends of the pipes, and the honey extracted with an iron hook: those pieces of comb which contain young bees are carefully replaced, and the hives then closed up again. Honey, wild or from hives, is always to be purchased, and it is used for many culinary purposes, and especially for the preparation of sweet cakes. It has the delicate aromatic flavour of the thyme-scented honey of Hybla or Hymettus.

But, however extensive are the Bee colonies of the villages, the number of wild bees of the same species is far greater. The innumerable fissures and clefts of the limestone rocks, which everywhere flank the valleys, afford in their recesses secure shelter for any number of swarms; and many of the Bedouin, particularly in the wilderness of Judæa, obtain their subsistence by bee-hunting, bringing into Jerusalem skins and jars of that wild honey on which John the Baptist fed in the wilderness, and which Jonathan had long before unwittingly tasted when the comb had dropped on the ground from the hollow tree in which it was suspended. When we see the busy multitude of bees about the cliffs, we call to mind the words: "With honey out of the stony rock would I have satisfied thee." Amidst all its desolation the Land of Promise is, even to the present day, "a land flowing with honey."

The Orientals have a sweet tooth, and are in the habit

of eating honey to a degree that would nauseate a Western stomach.

The Word of God is frequently compared in Scripture to honey for its sweetness (Ps. xix. 10, &c.). Debôrah (Bee) was a favourite and appropriate female name (Gen. xxxv. 8; Judg. iv. 5).

The number of species of Humble Bee in Palestine is very great, and Mason Bees are especially numerous, but their stores of honey are too inconsiderable to have been an object of search.

LEPIDOPTERA.

MOTH. Heb. *'âsh*.—The mention of the Moth in Scripture is, with a single exception, confined to the destruction caused in clothing by the larvæ of the little Clothes' Moth (*Tineidæ*), of which very many species are found in Palestine: "They all shall wax old as a garment; the moth shall eat them up" (Isa. l. 9). "He consumeth as a garment that is moth-eaten" (Job xiii. 28). "Where moth and rust doth corrupt" (Matt. vi. 19). "Your riches are corrupted, and your garments are moth-eaten" (Jas. v. 2), &c. &c. In these passages reference is made to the custom in the East of hoarding up immense stores of raiment, which are one of the customary signs of wealth in those countries.

In Job iv. 19: "How much less in them that dwell in houses of clay, whose foundation is in the dust, which are crushed before the moth?" we should rather read 'easier than the moth.' In Job xxvii. 18, "He buildeth his house as a moth," the allusion is to some of the many leaf-rolling larvæ of the Moth family, whose cases are crushed by a touch. It is needless to quote further the many passages referring to the havoc made by the Moth among woollen garments.

No other Lepidopterous insect is alluded to in Scripture, and the class including butterflies and moths is not very numerously represented in the Holy Land; the dry climate of which, together with the scarcity of wood, is not particularly favourable to the development of this group. The butterflies are for the most part similar to those of South-eastern Europe, though in the Dead Sea region several Nubian and Abyssinian forms are found. The number of recorded species in the Holy Land is about 280.

Diptera.

Flies.—Two Hebrew words are thus translated—(1.) *'Aróh*, which occurs only in the history of the plague of flies in Egypt (Ex. viii.), and in the references to that visitation in the Psalms (lxxviii. 45, cv. 41). What fly is intended, or whether any particular species, it is impossible to ascertain; but flies, like our Common House-fly (*Musca*), are among the pests of Egypt, as well as the gnats or mosquitoes (*Culicidæ*). There are also many species of blood-sucking horse-flies (*Hippoboscidæ*) and gadflies (*Œstrus*). The Common Fly is, however, quite tormenting enough to have been of itself the Egyptian plague. Those who have not lived in the East can have but little idea of the irritation and pain caused in some places, and at some seasons, by the countless swarms of these insects, which are far more rapacious than in temperate climates, and many species of which settle on the human body like mosquitoes, and by their bites draw blood, and produce festering sores. The spread of the purulent ophthalmia, the curse of Egypt, is well known to be owing to this fly, which carries the infection from one person to another.

(2.) *Zebub* occurs only twice: "Dead flies cause the ointment of the apothecary to send forth a stinking savour" (Eccles. x. 1). "The Lord shall hiss for the fly that is in the uttermost part of the rivers of Egypt" (Isa. vii. 18). The swarms of flies in the East very soon corrupt and destroy any moist unguent or mixture which is not carefully covered from them, and pollute a dish of food in a few minutes. The second passage seems to point to a Gadfly, or a genus like it, which is well known under the Arabic name of *dthebab*, almost the same as *zebub*, and which we found extremely tormenting to our animals in the hotter parts of the Jordan valley. It is also common in the valley of the Nile. The name is frequently given to any large blood-sucking fly. So grievous a pest was the *zebub*, that the Phœnicians invoked against it the aid of their idol under the name of Baalzebub, which the Jews in derision changed to Baalzebul, 'Baal of the dunghill,' and applied in the time of our Lord to the prince of the devils (Matt. xii. 24, &c.).

Gnat, Gr. κώνωψ, only occurs in the New Testa-

ment: "Ye blind guides, which strain at a gnat, and swallow a camel" (Matt. xxiii. 24), where it is mentioned as being one of the smallest of insects. The Gnat of the East, better known to travellers under the name of 'Mosquito,' is one of the most irritating pests of most countries, and nowhere more so than in the low-lying marsh lands of Egypt and Palestine. It may well be included under the 'flies' of the plague of Egypt. Small as it is, its persecution is intolerable, and its bite very irritating, often producing fever, and painful local sores. At night especially it robs the wearied and fevered traveller of his rest, not only by its insatiate attacks, but also by its incessant sharp buzz, which is a sound positively painful to most ears, and produces effects on the nerves similar to those produced on cattle and horses by the buzz of the Gadfly.

The only protection against these tormentors is to sleep on high ground away from water or trees. Gnats belong to the genus *Culex*, distinguished by their long proboscis, which is a grooved sheath, from which the insect shoots long, slender darts into the skin; and the larvæ and pupæ always live in water, only emerging into the air when they leave the chrysalis.

Anthozoa.

Coral, Heb. *ramoth*, signifying 'that which grows high' or like a tree.—Coral was highly prized among the ancients, and, from the difficulty in procuring it, bore a higher comparative price than it does now. Among the Egyptians, articles of coral, jewelry, beads, charms, and seals, were much employed and are often found in the tombs. The value of Coral is spoken of in Scripture: "No mention shall be made of coral, or of pearls: for the price of wisdom is above rubies" (Job xxviii. 18). "Syria was thy merchant . . . they occupied in thy fairs with emeralds . . . . and coral, and agate" (Ez. xxvii. 16).

The Coral thus brought by the Syrians to Tyre must have been that of the Red Sea, or the Persian Gulf, which is the finest and most valuable, although the Mediterranean also produces Red Coral in considerable quantities. Coral, as is now well known, is the massive skeleton composed of calcareous particles deposited by

myriads of little microscopic polypes or zoophytes, taking various shapes in different species. Millions of these zoophytes unite, and generation after generation deposit their stony cells on the top of their predecessors, till some species have gradually formed vast islands in the ocean. The Red Coral of commerce is broken off the rocks and drawn up from a considerable depth, to which, perhaps, allusion is made in Job, as the expression 'the price of wisdom' would more exactly be rendered 'the drawing up of wisdom.'

CHAPTER XII.

BOTANY: TREES, FRUITS, PLANTS, HERBS, AND FLOWERS.

Part I.—Trees and Shrubs.

The botanical and floral illustrations and allusions of the Bible are very numerous, but are for the most part confined to the vegetable products of three countries, viz. Egypt, the Arabian Desert, and the Holy Land; yet, within these geographical limits, there is a much wider range of variety than could easily be found elsewhere. That south-eastern corner of the Mediterranean presents wide contrasts of climate and conditions, from the seething marshes of the Nile to the snow-clad heights of Lebanon. When Solomon "spake of trees, from the cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall," his botanical knowledge extended from the hardy Pine under northern snows to the plants of the sultry deserts of Arabia.

In the narrative of the creation there is only one general botanical division made, viz. into grass, herbs, and trees: "Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth" (Gen. i. 11). *Grass* is here used for the herbage, which is the pasturage for cattle; *the herb yielding seed* for those herbs and plants which are suitable for human food; while all the trees of the wood and forest may be included under *the fruit tree yielding fruit after his kind.*

The allusions to the plants of Egypt are not many, and are chiefly confined to the products of the garden and the cultivated field. The botany of Egypt is not its characteristic feature. Beyond the clumps of Date Palms about the villages, the trees are very few; there is no waste or forest land; where the garden or artificially-watered field ends the desert begins; and it is only in the marshes of the Delta, in Lower Egypt, that the natural produce of the country is found growing in

undisturbed luxuriance. In the time of Moses, there must have been even less scope for the upgrowth of native plants than now. Consequently, the allusions to the vegetable products of Egypt are confined to its corn, to its wheat and rye, its flax and barley, its leeks, onions, and garlic, the cucumbers and the melons of its watered gardens, with the exception of the bulrushes or papyrus of its river-side; while the absence of fruit trees is hinted at by the presents taken down by Jacob's sons—"balm, spices, and myrrh, nuts, and almonds" (Gen. xliii. 11).

In the Arabian desert we have the Palm trees shading the wells, as at Elim; the Shittim Wood, or Desert Acacia, probably the burning bush of Horeb; the Hyssop, or Caper Plant, still so conspicuous in the Sinaitic desert; the Terebinth, solitary here and there; and the Juniper tree, the desert Broom or Retem, under which the prophet rested.

Richly varied, on the contrary, is the botany of the Holy Land itself, from the wilderness of Beersheba to the top of Hermon, and very many are the allusions to it in every part of Scripture. Modern travellers have repeatedly noticed the beauty and abundance of its spring flowers, and equally varied are its trees and shrubs: not less than 1000 species of plants have been recorded as natives of Palestine, and the whole number of species probably reaches 2000; but of these a very small portion are referred to in Holy Writ, and those it is often difficult to identify with certainty.

We will commence by noticing the forest trees, fruit trees, and shrubs spoken of in Scripture.

Algum or Almug Trees (called almug in 1 Kings x. 11, 12, and algum in 2 Chron. ii. 8, and ix. 10, 11).—Nothing certain is known of this wood, excepting that it was not indigenous in Palestine; for though Solomon desires Hiram to send him Cedar trees, Fir trees, and Algum trees out of Lebanon, yet from the other passages it is clear that, while the King of Israel imported them by way of Tyre, they were brought thither from Ophir along with gold and precious stones. It was evidently a very precious wood, and used for inlaying stairs and for the manufacture of musical instruments (1 Kings x. 12, &c.). It must, therefore, have been hard and close-grained.

The most probable conjecture is that which identifies the Algum with the *Red Sandal Wood* of India (*Pterocarpus santalinus*), which is very heavy, fine-grained, and of a brilliant red colour, and, according to Dr. Lee, is highly esteemed in the East to this day for the construction of lyres and other musical instruments. It must not be confounded with the White Sandal Wood of commerce, well known for its delicious fragrance, and used for the manufacture of cabinets and ornaments.

Almond; Almond Tree (*Amygdalus communis*).—Frequently mentioned in Scripture, and one of the native fruits of Palestine. Like the Peach and Apricot, which belong to the same family, its blossoms appear before its leaves. The leaf is long and narrow, with a serrated edge, and the fruit like a green peach, with a similar rough skin, but having scarcely any pulp between the stone and the skin, which dries up and shrivels off in September. It is the earliest of all the trees in Palestine to put forth its blossoms, which we gathered at Bethany in January; hence its Hebrew name, *shâked*, i.e., *hasten*. This explains the passage in Jer. i. 11, 12: "The word of the Lord came unto me, saying, Jeremiah, what seest thou? And I said, I see a rod of an *almond* tree (*shâked*). Then said the Lord unto me, Thou hast well seen: for I will *hasten* (*shâked*) my word to perform it;" where there is a play on the word. In our own language the Hawthorn is in like manner termed *May*, from the time of its flowering.

The blossom of the Almond is a very pale pink; but when, as in the orchards near Nablous (Shechem), the Peach and Almond trees are intermingled, the Almond looks white by comparison. In early spring it forms a beautiful feature in the landscape there, as the lower slopes of Gerizim as well as the valley are studded with almonds and peaches, in lovely contrast with the deep green foliage of the Orange trees, and rivalling an Apple orchard in splendour of colour. There are also many wild Almond trees on Mount Carmel. The tree seldom exceeds twelve to sixteen feet in height.

The Almond does not appear to have been cultivated in Egypt, since almonds were among the presents taken down to Egypt by Jacob's sons. Aaron's rod, that miraculously budded, was of this tree, and yielded almond nuts. It is probably in commemoration of this event

that the Jews to the present day carry boughs of Almond blossom to their synagogues on great festival days.

In the description of old age, in Eccles. xii. 5, it is said, "The almond tree shall flourish." This has generally been explained by the resemblance between the hoary locks of old age and the blossom of the Almond. But this blossom is pinkish rather than pure white. Others, therefore, have translated the passage, "The almond is rejected," *i.e.*, the teeth of old age are unable to crack it. But the better interpretation seems to be, retaining our translation, that as the Almond blossom ushers in the spring, so do the signs referred to in the context indicate the *hastening* of old age and death.

The fruit of the Almond was the model of the ornaments of the candlesticks in the tabernacle; and to this day the glass-drops, used for ornamenting branch candlesticks, are termed by the English workmen 'almonds.' The word, translated 'hazel' in Gen. xxx. 37 ('*luz*'), is supposed to mean the Almond, and is identical with its Arabic name.

ALOES; LIGN-ALOES.—The word thus translated (*ahâlim*) must refer to some noble tree, producing a precious gum or perfume. It has consequently been generally identified with the *Aquilaria agallochum*, found in Cochin China, and Silhet, in Northern India, and attaining a height of 120 feet, from which a costly perfume is extracted. But this tree is not found in Chaldæa or Syria, and it is scarcely to be supposed that Balaam would have compared Israel to trees which he had never seen growing.

While Balaam probably alluded to some other tree, which we cannot identify, it is very possible that the 'Aloes' mentioned in other passages—as in Ps. xlv. 8, "myrrh, aloes, and cassia;" Prov. vii. 17, "myrrh, aloes, and cinnamon;" Cant. iv. 14, "Myrrh and aloes;" and John xix. 39, "a mixture of myrrh and aloes"—refer to the produce of the Indian tree, especially since it is mentioned in connection with other foreign spices; and the passage in Ps. xlv. 8 might be translated, "myrrh, &c. . . . brought from the ivory palaces of the *Minni*," *i.e.*, the Menæi, or inhabitants of spicy Arabia, who were the importing merchants of the precious commodities of the far East. The 'Aloes' of Scripture has nothing to do with the Aloes of medicine.

APPLE.—The Hebrew word *tappûach*, thus translated, occurs four times in Canticles: "As the apple tree among the trees of the wood, so is my beloved among the sons. I sat down under his shadow with great delight, and his fruit was sweet to my taste" (ii. 3). "Comfort me with apples, for I am sick of love" (ver. 5). "The smell of thy nose like apples" (vii. 8); and "I raised thee up under the apple tree" (viii. 5). Also in Prov. xxv. 11: "A word fitly spoken, is like apples of gold in pictures of silver;" and Joel i. 12, where the '*tappûach*' is enumerated among the familiar fruit trees of the land, the vine, the fig tree, the pomegranate, and the palm tree.

Critics and commentators have roamed through all the orchards of Europe and Asia to identify the fruit indicated; but few of their conjectures meet the requirements of the case. The Quince, the Citron, and the Apple, have each had their advocates. From the passages in which the '*tappûach*' is mentioned, it is evident the tree must have supplied a grateful shade; that the fruit must have been not only sweet and agreeable to the taste, but that it must have had a peculiar fragrance or perfume, combined with a beauty of appearance, as it contrasted with the foliage ("apples of gold in pictures of silver").

The Quince, though fragrant, is astringent, and unpleasant to the taste until cooked; nor is it a fruit of striking beauty. To the Citron, the objection may be alleged that, though the shade is dense and delightful, the tree beautiful, and the fruit indeed golden and fragrant, yet it is not sweet or eatable, and is only used when prepared as a sweetmeat. We have no reason to believe that the Orange was, at the Old Testament period, introduced into Palestine. The Golden Apple of the Hesperides, though now largely cultivated there, was certainly a much more modern importation.

The Pear is wild in Galilee, and is cultivated in the Lebanon and about Hermon, but not in Southern or Central Palestine; and elsewhere it is like the Quince, too unimportant a fruit to have been selected for such illustrations. Neither can the '*tappûach*' be the Apple; for though that fruit is cultivated with success in the higher parts of Lebanon, out of the boundaries of the Holy Land, yet it barely exists in the country itself. There

are, indeed, a few trees in the gardens of Jaffa, but they do not thrive, and have a wretched, woody fruit; and perhaps there may be some at Askelon. But what English and American writers have called the 'Apple' is really the *Quince*. The climate is far too hot for our Apple tree.

There is one fruit, however, which is not otherwise mentioned in Scripture, and most abundant in the Holy Land, which meets all the requirements of the context, and the only one which does so—the *Apricot*. It is true there are no wild apricots in Palestine; but neither is the Apple, Quince, or Citron wild there, and the Apricot is known to be a native of the neighbouring country of Armenia, and therefore probably introduced as early as the Vine, which was originally from the same regions, and is certainly not a native of Palestine. But everywhere the Apricot is common. Perhaps it is, with the single exception of the Fig, the most abundant fruit of the country. In highlands and lowlands alike, by the shores of the Mediterranean and on the banks of the Jordan, in the nooks of Judæa, under the heights of Lebanon, in the recesses of Galilee, and in the glades of Gilead, the Apricot flourishes, and yields a crop of prodigious abundance. Many times have we pitched our tents in its shade, and spread our carpets secure from the rays of the sun: "I sat down under his shadow with great delight, and his fruit was sweet to my taste." "The smell of thy nose (shall be) like '*tappûach*.'" There can scarcely be a more deliciously-perfumed fruit than the Apricot; and what fruit can better fit the epithet of Solomon, "apples of *gold* in pictures of silver," than this golden fruit, as its branches bend under the weight in their setting of bright, yet pale foliage?

Ash.—The Hebrew word *oren*, which occurs only once, in Isa. xliv. 14, is thus rendered, where it is mentioned as a tree out of the wood of which idols were made: "He planteth an ash (*oren*), and the rain doth nourish it." It cannot be our Ash tree, which is not a native of the Holy Land, though now introduced and planted in the north. The Septuagint translates it as a Pine tree, and this interpretation, which is supported by the best critics, seems the most probable. Perhaps the Syrian Pine (*Pinus halepensis*), which flourishes on the coast of Palestine, and is extensively planted in some

districts to prevent the encroaching of the sand-drifts, is the species particularly intended.

It may be added, that there is a tree in the valleys of Arabia Petræa, described as somewhat resembling our Mountain Ash in foliage and fruit, and called by the name '*aran*,' which may be the Arabic synonym of the Hebrew '*oren*,' and possibly is the tree intended.

BALM; BALSAM.—Our English word *balm* is derived from a Hebrew word *bosem*, rendered 'spices' in Exodus xxx. 23; Cant. v. 1, 13; vi. 2, &c. This Balsam was a plant, as we find from Cant. v. 13: "His cheeks are as a bed of spices" (balsam).

The word translated '*balm*' is '*tzori*,' an entirely distinct term. It is sometimes, as in Gen. xxxvii. 25, xliii. 11; Ez. xxvii. 17, used to signify a gum or preparation. In other cases, as in Jer. viii. 22, it may probably be interpreted of the tree yielding the gum.

There are three claimants for the '*Tzori*,' or Balm tree: (1.) The *Pistachia lentiscus*, or Mastick [see MASTICK]; (2.) the *Balanites ægyptiaca*, or Modern Balm of Gilead; (3.) the *Balsamodendron gileadense*, or True Balm of Gilead of botanists. Perhaps the *Tzori*, or Balm, was a term not confined to the gum or oil of one particular tree, but applied indiscriminately to the preparations from any of these, all of which were held to possess medicinal virtues, though in different degrees.

The Mastick tree grows commonly all over the country, excepting in the plains and the Jordan valley.

The *Balanites ægyptiaca*, known to travellers as the False Balm of Gilead, is confined to a very limited district in the Holy Land—the sultry plains which border on the Dead Sea. We found it growing plentifully in the Plain of Jericho, in the Plain of Shittim, or Moab, on the east side of the Jordan, and in the oasis of the Ghor es Safieh, at the south-east corner of the Dead Sea, and nowhere else. It is called *zukkum* by the Arabs, a name which many travellers have erroneously applied to the Oil tree, or *Eleagnus angustifolius*.

The oil of the berry of the zukkum is carefully prepared by the Arabs of Jericho, and sold in large quantities to the pilgrims as balm of Gilead. Both by them, and by the Moslems, it is highly esteemed as a medicinal unguent for wounds and bruises. In taste and colour it resembles the oil of sweet almonds, but is thicker. The

tree is small, not much larger than a shrub, evergreen, with a very smooth glossy bark, and many sharp spines. The leaves are small and oval, of the shape, and often scarcely exceeding in size the leaves of our Box tree; and the blossom, which is very small and inconspicuous, grows in tufts close to the stem. The fruit, in shape and colour, is like a small unripe walnut. This the Arabs collect before it is ripe, pound it, and then, simmering it gently, skim off the oil which rises, and which, without further preparation, is the balsam.

BALM.

But the most precious balm, that of Gilead, was probably the produce of the *Balsamodendron gileadense*, or *Opobalsamum*, which is now cultivated about Mecca. Its native country appears to be the east coast of Africa. Formerly it was cultivated with great care in the Plains of Jericho, and the Jews had a tradition that it was first planted there by Solomon, who received a root from the Queen of Sheba. Its value was very great, and it was considered peculiar to this spot in the days of Josephus. From Jericho, Cleopatra obtained plants for her

gardens at Heliopolis; an imperial guard was placed over the gardens; and twice was the Balm tree exhibited in triumph in the streets of Rome—once by Pompey, B.C. 65, after the first conquest of Judæa, and again by Vespasian, when Titus exhibited the Balm tree along with the spoils of the Temple of Jerusalem after its final destruction.

Since that time it seems to have been lost; and though the Crusaders largely cultivated the Sugar Cane and the Date, in the Plains of Jericho, we find no trace of the Balsam tree on record. It was hoped that it might still linger in the undisturbed recesses of the Plains of Shittim on the east side of Jordan, but we searched those seething glades for it in vain.

The tree is described as a small evergreen, with scanty foliage and smooth bark, with small, white blossoms, resembling the tufts of the Acacia, and a reddish black, pulpy nut, containing a fragrant yellow seed. The balsam is obtained from the bark by incision, from the green nut, and an inferior quality from bruising and boiling the young wood. The exudation is of a yellow colour, very tenacious, and has a fragrant resinous scent. It is used as an internal medicine for stomachic complaints, and also externally for wounds. To this precious unguent the prophet probably refers when he exclaims, "Is there no balm in Gilead, is there no physician there?" (Jer. viii. 22.) Many Gentile writers, as Tacitus, Strabo, and Pliny, speak of the balm of Gilead as a precious commodity, peculiar to Palestine.

BAY.—The word '*ezrach*' is once translated in our version 'Bay tree': "I have seen the wicked in great power, and spreading himself like a green bay tree" (Ps. xxxvii. 35). Elsewhere, the word signifies a 'native,' as opposed to a stranger or foreigner. It may be questioned whether any particular tree is intended by the Psalmist; but, if so, it must have been an evergreen, and may possibly be the Sweet Bay (*Laurus nobilis*), which is a native of Palestine. It is not very common, but may be found in most of the wooded dells of Northern and Western Palestine. We met with it near Hebron; on Mount Carmel, in great plenty; on Tabor; and in various glens of Galilee and Gilead. The Sweet Bay is well known in our shrubberies, with its aromatic leaves, and pretty, though inconspicuous, white blossoms. The Orientals extract a scented oil from its foliage.

Box. Heb. *teasshur*.—The Box tree is twice mentioned in our version: "I will set in the desert the fir tree, and the pine, and the box tree together" (Isa. xli. 19). "The glory of Lebanon shall come unto thee, the fir tree, the pine tree, and the box together, to beautify the place of my sanctuary" (lx. 13). The prophet Ezekiel (ch. xxvii. 6), when describing the commerce of Tyre, uses the word '*asshur*,' which is held by all the best commentators to be a contraction of '*teasshur*' (Box tree), though rendered 'Ashurites' in our bibles. In this case, the words, "The company of the Ashurites have made thy benches of ivory," should be translated, "The benches of the rowers have they made of *boxwood*, inlaid with ivory." We know that the ancients practised the art of inlaying or veneering wood, and especially boxwood, with ivory. Boxwood appears to have been imported from the isles of Chittim by the Phœnicians.

The species of Box found in Palestine is *Buxus longifolia*, slightly differing from our garden Box. It is a small, evergreen tree, about twenty feet high. We met with it only in Lebanon, but it may probably be found elsewhere, on the higher elevations of Galilee, or on the coast of Jordan. Another claimant for the '*teasshur*' is the '*sherbin*,' which some writers have confused with the Cedar, others with the Cypress, but which is really the *Juniperus excelsa*, a Lebanon species, growing in the same locality as the Cedar. The weight of evidence is, however, in favour of the Box tree, the wood of which is highly prized in Syria for making combs, spoons, and other domestic articles.

Camphire.—The Hebrew *côpher*, thus translated in Cant. i. 14: "My beloved is unto me as a cluster of camphire in the vineyards of Engedi;" and, in ch. iv. 13, has nothing to do with our Camphor, still less with the Cypress, our marginal rendering, an error arising from the similar sound of the Hebrew and Greek words. It is the familiar *Henna* of the Arabs, the *Lawsonia alba* or *inermis* of botanists.

The shrub, well known in India, Egypt, Nubia, and Tunis, is also found in Arabia, and on the shores of the Dead Sea at Engedi. It is a small shrub, eight or ten feet high, with dark bark, pale green foliage, and clusters of white and yellow blossoms of a powerful fragrance. Not only is the perfume of the flower highly prized, but a

paste is made of the dried and pounded leaves, which is used by the women of all ranks, and by the men of the wealthier classes, to dye the palms of the hands, the soles of the feet, and the nails. This astringent dye stains a reddish rust colour, and cannot be removed by soap, nor does it require renewal more than once in

CAMPHIRE.

two or three weeks. The object of the custom is to check the perspiration of the hands and feet. The continued existence of the Camphire plant at Engedi *alone* of the Holy Land from the time of Solomon to the present day, is a most interesting illustration of the Biblical reference, Cant. i. 14.

CAPER. [See HYSSOP.]

CASSIA.—Two spice-bearing trees are included under the word 'Cassia,' neither of them being found in Palestine, but well known as imported from the far East, through Arabia. They are: (1.) '*Kiddah*,' *Cinnamomum cassia* of botanists, mentioned in Ex. xxx. 24, as one of the ingredients in the holy ointment; and again in

Ez. xxvii. 19; where, in the description of the merchandise of Tyre, it is said, "bright iron, cassia, and calamus were in thy market." The Cassia is not now found in Arabia, and it is probable the spice was always imported from India. It is inferior to cinnamon, being coarser and more pungent, and the tree differs in the shape of its leaves, which are oblong, lanceolate, and triplicostate, according to Dr. Balfour, instead of being acuminate like those of the Cinnamon. The spice is the inner bark of the tree peeled off and dried in the sun.

(2.) '*Ketzioth*' occurs in Ps. xlv. 8: "All thy garments smell of myrrh, and aloes, and *cassia*," where the word denotes some cassia-bearing tree, of which there are several species; or, according to others, it is the *koost* of the Arabs, *costus* of the ancients, the Indian *orris*, or *Aucklandia costus* of botanists.

The accounts of the different species of Cassia and Cinnamon by the ancients are somewhat confused, which is not to be wondered at, when we remember that they were known only as imported products of a distant country, and that the trees themselves were as little known as, till recently, the Tea plant to ourselves. The mention of Cassia by Moses, in the Book of Exodus, carries us back to perhaps the earliest direct evidence extant of commerce between India and Egypt.

CEDAR.—The Hebrew name *erez*, which is preserved to this day in the Arabic *arz*, is applied in Scripture, as it is in the vernacular Arabic, both generically to trees of the Pine family, and more frequently to the Cedar of Lebanon (*Cedrus libani*) specifically.

The Cedar wood, mentioned in Lev. xiv. 4, Numb. xix. 6, was, probably, the timber of a fragrant species of Juniper, which grows among the rocks of Sinai. In the wilderness, the Cedar of Lebanon must have been quite unknown. But in most passages, especially when it is named Cedar of *Lebanon*, there can be no question as to the reference being to the *Cedrus libani* exclusively. The passages in which it occurs are too numerous for quotation. It is especially referred to as "the glory of Lebanon" (Isa. xxxv. 2, lx. 13). "The trees of the Lord." "The cedars of Lebanon which he hath planted" (Ps. civ. 16). "The cedars of Lebanon, that are high and lifted up" (Isa. ii. 13). "The righteous shall grow like a

cedar in Lebanon" (Ps. xcii. 12). "The Amorite, whose height was like the height of the cedars" (Amos ii. 9). "Behold, the Assyrian was a cedar in Lebanon with fair branches, and with a shadowing shroud, and of an high stature; and his top was among the thick boughs. All the fowls of heaven made their nests in his boughs" (Ez. xxxi. 3, 6).

Not only is it used in these and many other passages as a type of grandeur, might, and lofty stature, but it is the model of 'the spreading abroad'—the constant

CEDAR-GROVE.

growth—of the righteous man; his boughs are multiplied, become 'fair,' 'thick,' overshadowing in length and in multitude. "It shall bring forth boughs, and bear fruit, and be a goodly cedar: and under it shall dwell all fowl of every wing: in the shadow of the branches thereof shall they dwell" (Ez. xvii. 23). Its fresh, resinous fragrance is noticed: "The smell of thy garments is like the smell of Lebanon" (Cant. iv. 11). In the passage, "Open thy doors, O Lebanon, that the fire may devour thy cedars. Howl, fir tree; for the cedar is fallen" (Zech. xi. 1, 2), the lesser Fir tree is con-

trasted with the great Cedar, as the humble follower bewailing the fall of its mighty chief.

It was the prince of trees; it was to the vegetable what the lion was to the animal world. From it extended downwards the botanical knowledge of Solomon. To the Cedar of Lebanon upwards is the destruction of the trees from the burning bramble of Jotham. Of all monstrous presumption, the most outrageous was the proposal of the Thistle to ally itself with the Cedar (2 Kings xiv. 9). It was the crowning insolence of the proud boast of Sennacherib: "I am come up to the height of the mountains, to the sides of Lebanon; and I will cut down the tall cedars thereof" (Isa. xxxvii. 24). Every one who has seen these noble trees, recognises the force of the glorious and majestic imagery of the prophets. With their gnarled and contorted stems, and their scaly bark, with their massive branches spreading their foliage rather in layers than in flakes, with their dark-green leaves, shot with silver in the sunlight, as they stand a lonely group in the stupendous mountain amphitheatre—they assert their title to be the monarchs of the forest.

The wood of the mountain-grown Cedar of Lebanon is much closer in grain and darker in colour than that of trees grown in England. It was used by David in building the king's house, and by Solomon very largely in the erection of the Temple, and of his own palace; in the latter in such abundance, that part of it was called the house of the forest of Lebanon. The trees were felled and shipped from Tripoli and Gebal (*Jebeil*) by the Phœnician artificers of his friend Hiram, king of Tyre: "The men of Tyre and Sidon also brought to Joppa cedar trees from Lebanon for the second temple" (Ezra iii. 7). It was also employed by Herod for the roof of his temple, and of it is constructed the dome of the Church of the Sepulchre at Jerusalem at the present day. The men of Sidon were celebrated for their skill in carving Cedar, a pre-eminence they still retain. In Ezekiel xxvii. 5, the Cedar is spoken of as employed for masts—a purpose for which it is scarcely so suitable as the Pine, which may probably be here intended generically.

Besides the grove of cedars, near the Kadisha, celebrated and described by every traveller, there are many

other groves, clumps, and even whole tracts of Cedar forest scattered throughout Lebanon. As they are for the most part in the northern and most inaccessible districts, they have escaped the notice of most travellers. Several were discovered by ourselves, and some have been added since. At least nine distinct localities are now ascertained, some of them containing many thousand trees, and with an abundant succession of young saplings springing round them. But few, if any, of them can show any trees equal in size to those of the famous grove.

The Cedar grows rapidly, and lives long. Even in England there are trees not yet 200 years old, measuring twenty-one feet in girth, as at the seat of the Earl of Wemyss, in Gloucestershire.

Dr. Hooker calculates the age of the cedars of the grove to be 800 years, from the rate of growth of the Chelsea cedars. From the rings in a branch, one of the older trees might be 2500 years old; but this, he observes, is no doubt widely far from the mark. Still an immense antiquity must be assigned to some of them.

The Cedar is not found in any other part of Palestine, not even on Hermon, the anti-Lebanon, or the highest forests of Gilead. It extends, however, into Asia Minor, being plentiful on the Taurus range. There are only two other species of Cedar, both closely allied, and probably from the same original. One, the *Cedrus Atlantica*, is found in the Atlas mountains, where I have seen trees equal in size to the patriarchs of Lebanon, and growing at the same elevation, 6000 feet above the sea. The Atlantic Cedar is not so graceful, being stiffer in its growth. The other species is the *Cedrus deodara* of the Himalaya, well known in our shrubberies, and which covers vast tracts from Afghanistan to Nepaul, at an elevation of from 4000 to 12,000 feet. The cones of all these cedars very closely resemble each other, and are well known. The Cedar wood of commerce, used for pencils, &c., is the wood of a very different tree, the *Juniperus bermudiana*, of the warmer parts of North America.

Chesnut.—The Hebrew word, *'armôn*, occurs twice in the Old Testament (Gen. xxx. 37; Ez. xxxi. 8). In both cases it is translated *Chesnut* in our version, but more correctly in the Septuagint, *Plane tree*, *i.e.*, the Oriental Plane tree (*Platanus orientalis*). There can be little

doubt of this rendering, which is supported by all critics.

We never saw the Chesnut in Palestine, excepting planted in orchards in Lebanon; while the Plane tree, though local, is frequent by the sides of streams and in plains, both on the coast and in the northern parts of the country. The *'armón* is in Genesis associated with the Willow and Poplar, which, like the Plane tree, grow on low ground where the soil is rich and humid. It is

PLATANUS ORIENTALIS.

common on the banks of the Upper Jordan, and of the Litany (Leontes), where it overhangs the water. "The chesnut trees (plane trees) were not like his branches," and it is always a noble and beautiful tree. We examined a Plane tree, growing in one of the streets of Damascus, more than forty feet in circumference. The foliage is a pale green, the leaves palmate, like those of our common Sycamore (which, however, is a very different tree), and its flowers are in clusters of pendulous, rounded balls. It was held sacred by the Greeks, and Herodotus

mentions one of enormous size near Sardis, to which Xerxes paid homage. In Ecclus. xxiv. 14, Wisdom is compared to "a plane tree by the water."

PLANE TREE. (*Platanus orientalis.*)

The Hebrew name, *'armôn*, signifies 'naked,' and it is a characteristic of the Plane tree that it annually sheds its outer bark.

CINNAMON has the same name in Hebrew, *kinamôn*. Like Cassia, the plant was unknown in Syria. It is a native of Ceylon and other islands of the Indian Ocean, and is the *Cinnamomum zeylanicum* of botanists, belonging to the family of the Laurels. It was one of the principal spices employed in the composition of the precious ointment of the tabernacle (Ex. xxx. 23). Solomon refers to its use as a perfume: "I have perfumed my bed with myrrh, aloes, and cinnamon" (Prov. vii. 17); "Calamus and cinnamon, with all trees of frankincense" (Cant. iv.

14). It is also reckoned among the merchandize of the Apocalyptic Babylon: "Cinnamon, and odours, and ointments, and frankincense" (Rev. xviii. 13). The leaves of the Cinnamon are longer than those of the Cassia tree, and when bruised have the flavour of cloves. The tree attains the height of thirty feet, and has a white blossom. The spice is simply the inner rind separated from the

CINNAMON.

outer bark, and dried in the sun. Oil of cinnamon is obtained by boiling the ripe fruit, and an inferior kind from the outer bark and foliage.

Citron.—The passage in Lev. xxiii. 40, in the ordinance of the Feast of Tabernacles, "Ye shall take you on the first day the boughs [marg. fruit] of goodly trees," is interpreted in the Chaldæan paraphrase, and by many of the Rabbis, to signify the fruit of the Citron (*Citrus medica*). Josephus also takes the goodly fruit to mean the Citron, which is still used by the Jews at the Feast of Tabernacles.

The Citron is the most common species of the Orange tribe in Palestine, and was probably the first intro-

duced. It is a native of Media. The leaves are larger than those of the Orange, and the blossom pale purplish like the Lemon, instead of white like the Orange. The fruit, which is much larger than a lemon, and of an oblong shape, is only used as a conserve. The Citron continues in flower for several months. It is regularly used in the services of the synagogue, where a citron is handed round and smelt by the worshippers as they go out, when they thank God for all good things, and sweet odours given by Him.

Cypress.—The Heb. word *tirzah*, rendered 'cypress,' occurs but once: "He heweth him down cedars, and taketh the cypress and the oak. . . . yea, he maketh a god,

CYPRESS.

and worshippeth it" (Isa. xliv. 14, 15), where evidently, from the derivation of the word, some hard-grained wood is intended. Whether it be the Cypress (*Cupressus semper-*

virens) is disputed, and there is little but conjecture to support the translation. Some have interpreted it of the Syrian Juniper (*Juniperus excelsa*), which grows abundantly on Lebanon, and has by many been confused with the Cypress. Others have supposed that the Cypress is intended by the word translated 'fir' in our version, but with less satisfactory reasons. The Cypress is found in the neighbourhood of towns, and is much planted in cemeteries in the Holy Land, but I never noticed it wild there, though indigenous in the countries adjacent. Throughout the East it is used as a funereal tree, and its dark, tall, waving plumes render it peculiarly appropriate among the tombs.

EBONY. — Ebony (*hobnim*) is mentioned by Ezekiel (xxvii. 15) as a precious article of commerce brought to Tyre by the merchants of Dedan — the inhabitants of the Persian Gulf. It is the heart-wood of the *Diospyrus ebenus*, a tree growing in Ceylon and Southern India.

EBONY.

The tree also bears an edible fruit. It attains a great size, but the outer wood is white and valueless. The centre of the trunk is the only portion which yields the black ebony of commerce, and this heart is rarely more than two feet in diameter.

ELM.—Once only is the word '*elah*,' which frequently occurs, so translated, viz. in Hos. iv. 13: "They . . . burn incense upon the hills, under oaks, and poplars, and *elms*, because the shadow thereof is good." Elsewhere it is rendered by 'teil tree,' 'oak,' 'plane tree,' and 'terebinth.' The tree is undoubtedly the Terebinth (*Pistachia terebinthus*). There is no authority whatever for the translation 'elm,' which tree only is doubtfully indigenous in Southern Palestine. [See TEIL TREE.]

FIG—in Heb. *teenah*, Arab. *tîn*, and in Greek συκῆ, the *Ficus carica* of botanists—is very frequently mentioned both in the Old and New Testaments. The Fig tree belongs to the natural order of the Bread-fruit family, and the sub-order *Moreæ*, which includes also the Mulberry. The tree reaches a considerable size in Syria, where it is indigenous, the stem being often three feet thick. It has a very smooth bark, and leaves very large, thick, and palmate. The branches are numerous, wide and spreading, presenting an object of striking beauty when in full leaf. The fruit, unlike any other in this country, is an enlarged, succulent, hollow receptacle, containing the imperfect flowers in its interior. Hence the flowers of the Fig tree are not visible until the receptacle has been cut open.

The Fig tree is the first tree mentioned by name in Scripture (Gen. iii. 7), where our parents used its large and tough leaves as the earliest covering of their nakedness. It is one of the native fruit trees of the Promised Land, and is found wild or cultivated in every part of it. The land is described (Deut. viii. 8), as being "A land of wheat, and barley, and vines, and *fig trees*, and pomegranates; a land of oil olive, and honey." And when the spies, who were sent to view the land, returned to the camp in the wilderness, "They brought of the pomegranates, and of the *figs*" (Numb. xiii. 23).

The failure or destruction of the Fig is repeatedly threatened by the prophets as one of the Lord's sore judgments on the land: "He smote their vines also and their fig trees" (Ps. cv. 33). "They shall eat up thy vines and thy fig trees" (Jer. v. 17). "There shall be no figs on the fig tree, and the leaf shall fade" (viii. 13). "I will destroy her vines and her fig trees" (Hos. ii. 12) "He barked my fig tree." "The vine is dried up, and the fig tree languisheth" (Joel i. 7, 12). And its fruitful-

ness as a sign of Divine favour (Joel ii. 22). It must be borne in mind that the fig, especially when dried, is not only an agreeable luxury as with us, but is an important article of every-day food, one of the staples of the country. Dried figs and dates, along with barley-cakes, are the usual provender of the wayfarer for his journey, as well as the cheapest food.

"To sit every man under his vine, and under his fig tree" (1 Kings iv. 25; Mic. iv. 4; Zech. iii. 10; 2 Kings xviii. 31; Isa. xxxvi. 16), conveyed to the mind of the Jew the fullest idea of peace, security, and prosperity. Nor is the expression merely figurative. There is no protection against the rays of an eastern sun more complete than the dense foliage of the Fig tree. The cottages of Cyprus, where law and security reign to a degree unknown in Syria, have still their clump of fig trees round each door; and we have enjoyed both rest and food beneath the shade of the Cyprian Fig tree, cool even in the hottest autumnal weather. Under such a Fig tree, screened from all human observation by its dense foliage, Nathanael had wrestled in prayer, and was convinced at once of the Messiahship of Jesus by his knowledge of his retirement.

The Fig tree puts forth its earliest fruit-buds before its leaves, and is one of the earliest trees to shoot. In the hill-country it sheds its leaves in November, and we have observed in the passes of Benjamin the buds rapidly pushing as early as the end of February, though the leaves did not unfold for a month later. "When his branch is yet tender and putteth forth leaves, ye know that summer is nigh" (Matt. xxiv. 32). But the time of its coming into leaf varies much, according to situation.

It is one of the few plants which are found wild in all parts of the country alike. Even in the recesses of the hot oases by the Dead Sea it mingles with the Palm and the Henna. At Engedi, in the fissures moistened by perennial streams, the Fig tree clings to the rocks and overshadows the glen; and here it is evergreen, for no winter cold ever reaches those seething hollows, where the Fig tree yields throughout the year. It is peculiarly adapted for shading wells, and the first tree we saw on entering Judæa from the south was the Fig tree, which concealed the mouth of the well of Hhora. Every traveller will recall the fig trees overshadowing the well

of Ain Tîn, *i.e.*, 'the spring of the fig tree' on the Plain of Gennesaret, at the supposed site of one of the ruined cities.

Not less beautiful are those of Ain Mellaheh, by the waters of Merom, another travellers' halt, and the less-known fig trees of Ammon (Rabbath), Salt (Ramoth Gilead), Banias (Cæsarea Philippi), and others. In some parts, as in the glens between Nablous (Shechem) and Jerusalem, the Fig tree is cultivated as a sole or principal crop on the terraced hills. More frequently it is mingled with other orchard fruits, and especially with the vines—"a fig tree planted in a vineyard"—where the corners and irregular pieces of ground are generally occupied by a fig tree. The Fig tree is still common on Mount Olivet, and in the neighbourhood of Bethany.

There are three Hebrew words used for different kinds of figs: (1.) '*Bikurah*,' the first ripe figs, in Isa. xxviii. 4; Hos. ix. 10; Mic. vii. 1; the same word as '*boccóre*,' the early fig, of which there are only a few, gathered in June. (2.) '*Paġ*' (Cant. ii. 13), the green fig, or unripened fruit, which remains through the winter. The word is preserved in the Greek name, Βηθφαγὴ (Bethphage), 'house of green figs.' (3.) '*Debelah*,' 'cake of figs,' as we read, in 1 Sam. xxv. 18, "Abigail took . . . . two hundred cakes of figs." "A piece of a cake of figs" (1 Sam. xxx. 12) was given to the Egyptians famishing in the field: and cakes of figs were part of the supplies brought to David in Hebron (1 Chron. xii. 40). These cakes of figs were the '*karmous*,' or main crop, dried and pressed into cakes, in the state in which they are ordinarily imported into this country.

The fig still maintains its repute in the East as the best poultice (see Isa. xxxviii. 21); and its use is familiar among ourselves as efficacious for gum-boils.

Some difficulties have arisen respecting the incident, mentioned by the Evangelists, of our Lord cursing the barren Fig tree: "He saw a fig tree in the way," where the fruit was common to all comers, "and found nothing thereon, but leaves only" (Matt. xxi. 19). The event occurred at the end of March, or beginning of April, a time of year when it would be most unusual for a fig on Mount Olivet to be in leaf. But if the tree exhibited its precociousness by having leaves so early, it might be expected to have fruit, although the time of figs was not yet, for the fruit appears before the leaves. "It is plain

that no calculation of probabilities brought the Lord thither, but those abnormal leaves which he had a right to count would have been accompanied with abnormal fruit." The miracle of its withering away had a typical lesson for the Jews, who, professing to be first, should be last, seeing they had only "the rustling leaves of a religious profession, the barren traditions of the Phari sees, the ostentatious display of the law, and vain exuberance of words, without the good fruit of works."

FIR. Heb. *berosh, beroth*, translated in the Septuagint indifferently, as pine, cypress, and juniper.—The word occurs very frequently in the Old Testament, generally in connection with Lebanon or other mountain districts, and our translation is probably correct, though the term may have included the Cypress, which is a conifer, and the Juniper, which is similar in general appearance. It is associated with the Cedar of Lebanon for its noble growth (Ez. xxxi. 8): "The fir trees were not like his boughs." So, "The choice fir trees of Lebanon" (Isa. xxxvii. 24). It is coupled with the glory of Lebanon (ch. lx. 13). And it is promised as one of the signs of the renovated earth: "I will set in the desert the fir tree." "Instead of the thorn shall come up the fir tree" (Isa. xli. 19; lv. 13). Its timber is mentioned as applied to many uses. It was sent by Hiram to Solomon, for the construction of the Temple. The floor of the house was covered with planks of fir, and the two doors at the entrance of the Temple, and the gilded ceiling, were made of it. It was also used for rafters (Cant. i. 17), for the decks of ships (Ez. xxvii. 5), and for musical instruments (2 Sam. vi. 5).

Several species of Fir and Pine are found in Palestine, besides the cedar, cypress, and junipers. On the coast, and in the sandy plains, but not very common, is the *Pinus maritima*. But the most common species in Western Palestine, and one of the characteristic trees of the Lower Lebanon, is *Pinus halepensis*, or Aleppo Pine, which seems to have been mistaken by most travellers for the Scotch Fir, a species which most certainly does not exist in Syria. The Aleppo Pine is especially the Fir tree of Scripture, and is only inferior to the Cedar in size. It is found occasionally throughout the country as far as Hebron, but has generally been destroyed for fuel or timber. We know, for instance, that in the tenth

century after Christ, there was a fir wood between Jerusalem and Bethlehem, on the hills, of which not a trace remains. A few trees linger far south of Hebron, near Jattir ('Attir). Probably the destruction of the pine forests has had much to do with the diminution of the rainfall since ancient times.

FIR. (*Pinus maritima.*)

On the east side of Jordan another Fir occurs, the *Pinus carica*, of which there are extensive forests in Gilead, especially on Jebel Ajlun. These pine forests are only on the highest ranges, and cover the mountains upwards from the line where the evergreen oaks cease. They have been hitherto supposed to be *Pinus sylvestris*, or Scotch Fir. The *Pinus carica* is the Fir tree of the Taurus mountains likewise. Its cones are gathered, roasted, and the pips beaten out for food by the Arabs.

The Larch does not occur in Palestine.

FRANKINCENSE. Heb. *lebonah*, *i.e.*, white; Gr. λίβανος.—

The fragrant gum of an Indian tree, procured through Arabia: "All they from Sheba (Arabia) shall come: they shall bring gold and incense" (Isa. lx. 6). "To what purpose cometh there to me incense from Sheba?" (Jer. vi. 20.) Though brought from Sheba in Arabia at a very early period (for pure frankincense is named, in Ex. xxx. 34, as one of the ingredients in the mixing of the holy incense), yet we have no reason to believe the Frankincense tree grew in Arabia. At least it cannot be

FRANKINCENSE.

traced there now; and, as in the case of cassia and other spices, the Arabian merchants were not likely to be communicative on the secrets of their monopoly.

To the present day, the best frankincense used in Turkey is imported through Arabia from the Eastern Archipelago. It is also largely imported into Europe from Bombay for use in the Romish and Greek ceremonials; but of inferior quality to that used by the Mussulmans, which is of a white colour, brittle, and bitter to the taste, while the ordinary gum is yellowish. The tree which produces it grows abundantly in the hill-country of India.

and is called 'Salai' by the natives—*Boswellia serrata* of botanists. The resin is obtained by simply slitting the bark, and requires no further preparation. Frankincense was one of the gifts presented in homage by the wise men of the East to the infant Saviour.

Gopher Wood. Heb. *gopher*. — Occurs only once: "Make thee an ark of gopher wood" (Gen. vi. 14), where our translators have not attempted to render the word. It has been variously explained; but the most probable interpretation is that of Celsius, supported by many others, that it is the same as '*copher*,' *i.e.*, the Cypress, a tree, the wood of which, from its toughness and close texture, is well adapted for ship-building, and which grows in greater abundance in Chaldæa and Armenia than in any other country. [See Cypress.]

Grove.—Two words are rendered 'grove' in our version. The ordinary one, *asherah*, is supposed to signify an

TAMARISK TREE.

idol, or idolatrous symbol. The other, *eshel*, occurs three times: "Abraham planted a grove (*eshel*) in Beersheba" (Gen. xxi. 33); "Saul abode in Gibeah under a tree (*eshel*) in Ramah" (1 Sam. xxii. 6); "They took their bones (*i.e.*, of Saul and Jonathan), and buried them under a tree (*eshel*) at Jabesh" (1 Sam. xxxi. 13); but, in 1 Chron. x. 12, it is called '*elah*,' an oak. Critics are

agreed that '*eshel*' signifies some particular tree, and the best authorities identify it with the Arabic *asal*, the Tamarisk tree.

No less than seven species of Tamarisk are found in Palestine, and several of them in great abundance

TAMARIX GALLICA.

The banks of the Lower Jordan are fringed by a dense mass of tamarisk trees of the species *Tamarix pallasii*. Another species grows in the arid sands by the Dead Sea, and our Common Tamarisk (*T. gallica*) on the coast close to the shore. Almost all the species thrive best in the most barren, sandy, and salt situations, and sometimes reach such a size as to afford dense shade.

On several occasions we availed ourselves of their protection to pitch our tents under them. Beersheba is well suited for the growth of the Tamarisk; and we observed large numbers of the Eastern Tamarisk on the banks below the site of Jabesh Gilead, where the bodies of Saul and Jonathan were laid. The Tamarisk is a very graceful tree, with long feathery branches and tufts, closely clad with the minutest of leaves, and surmounted in spring with spikes of beautiful pink blossom, which seem to envelope the whole tree in one gauzy sheet of colour. The blossom has the appearance of catkins, and the growth of the tree is something like that of the *Lignum vitæ* of our shrubberies.

HAZEL.—This is the translation of the Hebrew word *luz*, which occurs only in Gen. xxx. 37, along with the 'Poplar' and the 'Chesnut' (Plane tree), as one of the trees from which Jacob cut the rods which he peeled to lay before the cattle. Celsius, and all the best authorities, render it 'Almond tree,' relying especially on the fact that the Arabic name of the Almond tree is identical. We did not observe the true Hazel wild in Southern or Central Palestine, nor was it likely to occur in Mesopotamia, though it is common in the Galilean and Lebanon districts. [See ALMOND.]

HEATH.—The word *'arar*, translated 'heath,' occurs twice in Jeremiah: "He shall be like the heath in the desert, and shall not see when good cometh" (ch. xvii. 6); "Flee, save your lives, and be like the heath in the wilderness" (xlviii. 6). There can be no doubt of the identity of this plant with the Arabic *'arar*, exactly the same word, which is a dwarf Juniper, growing in the most barren and rocky parts of the desert—the *Juniperus sabina*, or Savin. Its gloomy stunted appearance, with its scale-like leaves pressed close to its gnarled stem, and cropped close by the wild goats, as it clings to the rocks about Petra, gives great force to the contrast suggested by the prophet, between him that trusteth in man, naked and destitute, and the man that trusteth in the Lord, flourishing as a tree planted by the waters. The Savin is a mere shrub a few feet high, and bears a crop of dark purple berries with a strong flavour of turpentine. There is no true Heath in Palestine south of the Lower Lebanon.

HUSKS. [See LOCUST TREE.]

JUNIPER.—The Hebrew word *rothem*, or *rotem*, so translated, occurs in several passages. It is identical with the Arabic '*retem*,' and Algerian '*retama*'—the *Retama rœtam* of modern botanists, the *Genista rœtam* of older authors—and is not to be confounded with any species of Juniper. It is a species of Broom, very common in the ravines of the desert, and often on the open

RETEM BUSH. (*Retama rœtam.*)

ground. It is especially frequent near Sinai and Petra, occasional in the wilderness of Judæa, and abundant round the Dead Sea and in the ravines leading down to the Jordan valley. Thus it is strictly a desert shrub, never occurring in the richer or higher ground. In February, when it puts forth its sheet of delicate white and purplish-pink blossom, which precedes its tiny foliage, few shrubs can surpass it in grace and beauty.

It grows to the height of ten or twelve feet, and affords a thick and grateful shade.

It was under a Rothem bush that Elijah lay down when he fled into the wilderness, in the only passage which connects the desert of the wanderings with the subsequent history of Israel: "He came and sat down under a juniper tree (*rothem*). . . And as he lay and slept under a juniper tree (*rothem*), behold, then an angel touched him" (1 Kings xix. 4, 5). Dean Stanley incidentally mentions (p. 80) that in the only storm of rain he ever encountered in his travels in the desert, he took shelter under a Retem bush.

It is the largest and most conspicuous of all the plants of the desert, and is equally conspicuous in the less barren portions of the Sahara. It is ruthlessly uprooted by the Arabs, who collect it wherever it is tolerably abundant, for the manufacture of charcoal, which is considered of the finest quality, and fetches a higher price in Cairo than any other kind. The roots are far thicker and more massy than the stems. This explains the allusion in Ps. cxx. 4: "Sharp arrows of the mighty with coals of juniper (*rothem*)." Several travellers have mentioned their meeting with Bedouin employed in conveying Retem charcoal to the Egyptian markets. It would appear also to have been used as food in the last extremity, for Job speaks of outcasts from Edom when driven into the wilderness, as "cutting up mallows by the bushes, and juniper roots for their meat" (ch. xxx. 4). Its roots are very bitter, but its softer portions might doubtless, like many other leguminous plants, sustain life in extremity.

One of the stations of the Israelites in the wilderness was named 'Rithmah,' *i.e.*, the place of Rothem or Broom (Numb. xxxiii. 18). The Retem is found not only in Arabia, but in North Africa, and in the sandy plains of Southern Spain. The true Juniper is probably included under 'Cypress,' 'Fir,' and 'Pine,' [which see].

Locust tree.—Alluded to in Luke xv. 16, where its fruit is mentioned under the name husks (Gr. κεράτια). Another name is the Carob tree, from the *Charnub*, or *Charub* of the Arabs, and the Italian *Carobba*, the *Ceratonia siliqua* of botanists, of the order of Leguminous plants.

The tree is very common in Palestine from Hebron northwards, growing in every variety of situation, and

is a conspicuous and attractive object, with its deep green and dense foliage. Its leaves are like those of our Ash, but the leaflets more rounded, and very dark, glossy, and evergreen. It blossoms at the end of February, and the pods are found in enormous quantities in April and May. They are flat and narrow, from six to ten inches in length, of the shape of a horn, whence the Greek name. Before they are ripe, they are agreeable and sweetish when chewed, reminding me somewhat of the pods of the Tamarind in the West Indies, and, like

LOCUST TREE. (*Ceratonia siliqua.*)

that fruit, are often used steeped in water to supply a pleasant and cooling drink.

These 'husks' are to be seen on the stalls in all Oriental towns, where they are sold for food, but are chiefly used for the feeding of cattle and horses, and especially for pigs, where, as at Caiffa, these animals are kept by the Christian population. Both Horace and Juvenal speak of the pods of the Locust tree as the food of the very poorest and most miserable, as in the parable our Lord represents the prodigal, when reduced to the most abject misery, fain to fill his belly with

the husks which the swine did eat—a type of the sinner who has wandered from God, and has to be content with the unsatisfying husks of this world's enjoyment.

In the valleys opening on to the Plain of Acre we found Locust trees of very large size, under which the animals were driven to feed on the fallen pods. The tree is grown in all the countries bordering on the Mediterranean, and in Malta is cultivated for exportation to England, where the fruit is used for horses, under the name of Locust Beans.

Manna.—The vegetable product so named, which is collected in the deserts of Arabia Petræa, has no connection with the miraculous food of Israel in the wanderings, beyond the fancied similarity in its taste, which is extremely sweet. It has no resemblance whatever to coriander seed, being simply a sweet exudation, which is distilled in hot weather after rains from the Tamarisk trees, and carefully collected before sunrise, boiled and strained, and then used as honey. When kept for any length of time it becomes quite solid, and forms a hard cake, which, however, melts on exposure to the sun. It is only collected in very small quantities, and is considered a great delicacy by the Bedouin. Both the common species of Tamarisk yield it, and also, in smaller quantities, the Oak. We frequently observed and tasted this gummy exudation on the tamarisks by the Jordan in the early morning, but before evening the sun's rays had melted it all away.

Mastick tree.—The name only occurs in the Apocrypha (in the story of Susannah, v. 54), but it is supposed by many critics to be also the Balsam tree of Gen. xxxvii. 25, xliii. 11, because it is doubtful whether at that early period the true *Balsamodendron*, or Balm of Gilead, had been introduced into Canaan. The Mastick (the *Pistachia lentiscus* of botanists) yields a valuable gum (gum mastick), which was an object of commerce from the most ancient times. The tree is extremely common in all the Mediterranean countries, especially on the African coasts and in the Greek islands, where it overruns whole districts for many miles. It is also indigenous in all parts of Palestine. It is a small evergreen tree, nearly allied to the Terebinth, and is well known as the *Lentisk*—its Greek name. It is seldom more than twelve feet high, very bushy, with thick, crooked

branches. The leaves are pinnate, like those of our common Ash, and the flowers are arranged in tufts close to the juncture of the leaves. They are small and inconspicuous. The fruit is a berry, like the hawthorn in size and colour, and remains on the tree till the end of winter, supplying food to numbers of migratory birds.

The gum mastick is obtained by making incisions in the bark, in dry weather, in summer and autumn. It is considered very valuable for the teeth, whence its name from μαστιχάω, to chew or masticate. It is also largely employed in the manufacture of varnish, and a spirit is distilled from the berries. The foliage possesses the very useful quality to the traveller of burning like dry wood, whence it is known to the French as *brûle-capote.*

Mulberry.—The Hebrew word so translated (*becâîm*) occurs in 2 Sam. v. 23, 24: "When David enquired of the Lord, he said, Thou shalt not go up; but fetch a compass behind them, and come upon them over against the mulberry trees (*becâîm*). And let it be, when thou hearest the sound of a going in the tops of the mulberry trees, that then thou shalt bestir thyself:" and in the parallel account (1 Chron. xiv. 14–15).

In Ps. lxxxiv. 6, the word '*baca*' occurs, but with a totally different meaning, denoting 'weeping.'

Commentators are not agreed as to the tree intended, though there is nothing to support the rendering of the Rabbis and of our version either in the ancient versions or in philology. Celsius considers it identical with the Arabic '*baka,*' a species of Arabian gum tree; but this is inadmissible, as that is not a tree which could flourish in the highland valley of Rephaim. Others believe it to be a kind of poplar. There is every reason to believe that the Aspen or Trembling Poplar (*Populus tremula*) is the tree intended. The characteristic and well known quaking of its leaves appears to be alluded to in the expression, "the sound of a going in the tops of the *becâîm.*" Either our Aspen, or a tree very like it, is among the Palestine species.

The Mulberry tree is mentioned in the New Testament (Luke xvii. 6) under the name of *sycamine,* and also occurs in the Apocrypha, where, in 1 Mac. vi. 34, it is stated that the juice of mulberries was used to excite

the elephants of Antiochus, who took it for blood. [See SYCAMINE.]

MYRRH.—The name of this well known spice is similar in all languages. In Hebrew it is *Môr*, in Greek *σμύρνα*, and there is no question as to its identity. Myrrh is mentioned repeatedly, both in the Old and New Testaments, and was applied to various uses. It was a principal ingredient in the holy anointing oil of the Tabernacle:

MYRRH.

"Take thou unto thee principal spices, of pure myrrh five hundred shekels" (Ex. xxx. 23). It was also used as a perfume: "All thy garments smell of myrrh, aloes, and cassia" (Ps. xlv. 8). "I have perfumed my bed with myrrh, aloes, and cinnamon" (Prov. vii. 17). "My hands dropped with myrrh," &c. (Cant. v. 5). "A bundle of myrrh is my well-beloved unto me" (Cant. i. 13). It was also used for the purification of women (Esth. ii. 12): and for embalming. "Nicodemus . . .

brought a mixture of myrrh and aloes, about an hundred pound weight" (John xix. 39). Apparently also it was used as an anodyne: "They gave him to drink wine mingled with myrrh" (Mark xv. 23)—though this may refer to some other bitter, as St. Matthew speaks of 'gall' which may be 'wormwood.' [See GALL.] Myrrh was also among the gifts of the wise men of the East to the infant Saviour (Matt. ii. 11), and it was likewise valuable as a stimulant medicine.

Classical writers repeatedly mention myrrh and its various applications, and also that it was procured from Arabia, as we should gather from the scriptural allusions. Many modern travellers have noticed the Myrrh tree both in Arabia Felix (Saba) and in Eastern Africa. Its Arabic name is *murr*, and it is the *Balsamodendron myrrha* of botanists. It is, like most of the Balsam tree family, a low, thorny, ragged-looking tree, something like an Acacia, with small, bright, trifoliate leaves. A viscid white liquid oozes from the bark when punctured, which rapidly hardens on exposure to the air, and becomes a sort of gum, which is in this simple state the myrrh of commerce. The wood and bark of the tree emit a pungent aromatic odour.

There are several other closely-allied species of *Balsamodendron*, from which myrrh is procured.

In Gen. xxxvii. 25, and xliii. 11, another Hebrew word, *lôt*, is erroneously rendered 'myrrh' in our version. This is an entirely different plant—the Ladanum, or Cistus. [See LADANUM in next chapter.]

MYRTLE.—The Myrtle is several times mentioned in the Old Testament under its name '*hadas*,' identical with its Arabic and Indian appellation. Its botanical name is *Myrtus communis*. It has always been a favourite tree wherever found. Thus Isaiah, when speaking of the blessed time when the knowledge of the Lord shall cover the earth as the waters cover the sea, says: "Instead of the brier shall come up the myrtle tree" (Isa. lv. 13). And again: "I will plant in the wilderness the cedar, the shittah tree, and the myrtle, and the oil tree" (xli. 19). Zechariah, in his vision, speaks of the angel of the Lord standing among the myrtle trees (i. 8, 10, 11), showing them to be well known and common in the country. Nehemiah notices it as one of the trees whose boughs were employed in the commemora-

tion of the Feast of Tabernacles after the return from Babylon: "Go forth unto the mount (*i.e.* of Olives), and fetch olive branches, and pine branches, and myrtle branches, and palm branches, and branches of thick trees, to make booths, as it is written" (Neh. viii. 15).

Although no myrtles are now found on the Mount (of Olives), excepting in the gardens, yet they still exist in many of the glens about Jerusalem, where we have often seen its dark shining leaves and white flowers. There are many near Bethlehem and about Hebron, especially near Dewir Dan, the ancient Debir. It also sheds its fragrance on the sides of Carmel and of Tabor, and fringes the clefts of the Leontes in its course through Galilee. We met with it all through Central Palestine and in the dales of Gilead.

It is still employed by the Jews in the synagogues and in the Feast of Tabernacles, and in the bazaars of Jerusalem and Damascus the dried flowers, leaves, and berries of the Myrtle are to be seen in separate heaps offered for sale as a perfume; and a fragrant water is distilled from the blossom. Both leaves, bark, and root are used in Damascus for tanning the finest leather, and give it a delicate scent. It frequently grows in thickets in company with the Bay.

The Myrtle gave to Queen Esther her name, of which Hadassah (the Myrtle) is the Hebrew form.

The tree is too well known to need description.

NUTS.—Two words are translated 'nuts' in our version: '*Egôz*,' in Cant. vi. 11, which is the Walnut [see WALNUT], and '*botnîm*,' in Gen. xliii. 11, where they are enumerated among the good things of the land which the sons of Jacob were to take with them to propitiate the governor of Egypt.

The Pistachio nut is, doubtless, the fruit here intended, as is corroborated by its similar Arabic name of *batam*, a well known product of Syria, the fruit of the *Pistachia vera*, a tree allied to the Terebinth, and in size intermediate between it and the Lentisk or Mastick. It is frequently grafted on the former. Like many other trees, it has become more rare in Palestine than formerly, though here and there a few may be found both wild and cultivated. One or two we saw just outside of Jerusalem, by one of which we pitched our camp; but it was not till we reached Damascus and Beyrout that

we found the tree extensively cultivated. I believe I also saw it wild on Mount Gilead.

As it is a tree which loves a dry and rocky situation, it was not found in Egypt in patriarchal times, and therefore Jacob's present would be that of a foreign and uncommon luxury. Ancient writers mention it as peculiar to Syria, though this is not strictly correct, as it extends through Persia to Afghanistan. Aleppo is still celebrated for the quality and abundance of its Pistachio nuts.

Travellers have often confused the Pistachia with the Terebinth, which at a distance it closely resembles. The crop of nuts is very abundant, growing under the leaves, often in bunches of several together close to the main stem. They are of the shape of the Almond, but rounder and glossy, generally of a pretty red hue when fresh, and the kernel a bright green, with the flavour of the Walnut. An oil is extracted from the fresh fruit. It is dicœcious, *i.e.*, the male and female blossoms grow on different trees. The name of Betonim, a town of the tribe of Gad (Josh. xiii. 26), points to the ancient abundance of the Pistachia tree.

OAK.—No less than six Hebrew words from the same root are rendered 'oak' in our version. One of these, '*elâh*,' is properly the Terebinth or Teil tree. [See TEIL TREE and ELM (by which latter word '*elâh*' is once rendered).]

But it is sometimes interchangeable with '*allon*,' oak; as, in Gen. xxxv. 4, we find "Jacob hid them under the oak (Heb. '*elâh*') which was by Shechem;" while, in Judges ix. 6 we read: "The men of Shechem . . . . made Abimelech king, by the plain (Heb. by the oak [*elôn*]) of the pillar that was in Shechem,"—referring, doubtless, to the same tree, which seems also to be alluded to in Josh. xxiv. 26, under the name *allah* (oak). The trees are very different in kind; but the general similarity of appearance is so great that it is not surprising they should frequently be confused or included together by the Hebrews.

The other five names, *êl*, *êlôn*, *îlan*, *allah*, *allôn*, though variously translated, appear to be interchangeable, and to apply to the acorn-bearing oaks, the two latter words certainly to the Oak only. Probably '*allôn*' stands for the Evergreen Oak, and '*êlôn*' for the deciduous sorts.

Three species of Oak are common in Palestine, out of which no less than thirteen Syrian species have been manufactured by naturalists, who mistook variations from soil and situation as marking different sorts. At least as many more have been made out of these same three species in other parts of the Levant.

The most abundant of the three kinds is the Prickly Evergreen Oak (*Quercus pseudo-coccifera*). Dr. Hooker

ABRAHAM'S OAK.

observes: "It covers the rocky hills of Palestine with a dense brushwood of trees from eight to twelve feet high, branching from the base, thickly covered with small evergreen rigid leaves, and bearing acorns copiously. On Mount Carmel it forms nine-tenths of the shrubby vegetation, and it is almost equally abundant on the west flanks of the anti-Lebanon, and many slopes and valleys of Lebanon. Even in localities where it is not now seen, its roots are found in the soil and dug up for

fuel, as in the valleys to the south of Bethlehem. Owing to the indiscriminate destruction of the forests in Syria, this oak rarely attains its full size.

"The forests have been so completely cleared from all Palestine that we must not look for existing evidence of what the trees were in Biblical times and antecedently. In Syria Proper there are only three common oaks. All three form large trees in many countries, but very rarely now in Palestine, though that they occasionally do so is proof enough that they once did."

Those who have travelled through Gilead and Bashan are familiar with magnificent forests of all three species in the districts where man is rare.

The most famous existing Oak of the species *Q. pseudococcifera* in the Holy Land is the so-called Abraham's Oak near Hebron, which has for several centuries taken the place of the once-renowned Terebinth which marked the site of Mamre, on the other side of the city. The Terebinth existed at Mamre in the time of Vespasian, and under it the captive Jews were sold for slaves. It disappeared about A.D. 330, and no tree now marks the grove of Mamre. The present Oak is the noblest tree in Southern Palestine, being twenty-three feet in girth, and the diameter of the foliage, which is unsymmetrical, being about ninety feet.

There are many finer specimens in the north and east: one at Libbeiyah, near Mount Hermon, which I measured, is thirty-seven feet in circumference at the narrowest part of its trunk, and its foliage extends in a perfect dome for a circumference of ninety-one yards.

There are splendid forests of this Oak in Gilead, and more open park-like woods of it in Bashan. In Mount Gilead and Ajlun, north of the Jabbok, we rode for many miles through a dense forest of this tree, which yields on the mountain tops to the Pine, and lower down to the deciduous Oak, and other less hardy timber. There are noble trees of it in all the valleys south of Hermon, and especially near Banias (Cæsarea Philippi), and in many parts of Lebanon.

In general appearance and in colour of foliage, this Oak much resembles the Holm Oak of our own country, but the leaves are prickly, and very different in shape, being more like the Holly. The Arabic name is '*sindián*,'

while '*ballout*' is their generic name for all the species of Oak.

The next species is the *Quercus ægilops*, or Valonea Oak. It is deciduous, and in form of leaf and general appearance and growth is very like our English Oak. It is rare in the south, but very common in the north, and, unlike the other, never forms a bush or growth of underwood. It is scattered over Carmel, is abundant

QUERCUS PSEUDO-COCCIFERA.

on Tabor, and forms a forest to the north of that mountain. In Bashan it almost supplants the Evergreen Oak, and is doubtless the Oak of Bashan (Isa. ii. 12, 13; Zech. xi. 2). There it grows to a magnificent size, especially in the lower valleys; and I have ridden under some trees not inferior to the Oak of Mamre in girth. It bears very large acorns, and these are used as food by the Arabs, while the acorn cups are employed by dyers under the name of Valonia, and are largely exported.

A third species of Oak is *Quercus infectoria*, a deciduous tree, with foliage very white on the under surface. It is not so common as the other species, but grows on Carmel, and we also met with it in great abundance near Kedes, the ancient Kedesh Naphtali. We saw no very large trees of this Oak, which was seldom much more than twenty feet high. It did not occur south of Samaria.

Individual oaks are frequently mentioned in Scripture, some of which have been already referred to, as the Oak of Shechem. Thus we have the Oak of Weeping (Allonbachuth), under which Deborah, Rebekah's nurse, was buried at Bethel (Gen. xxxv. 8); Gideon's Oak of Ophrah (Judg. vi. 11); in 1 Sam. x. 3, 'the plain of Tabor' should be 'the oak (*elôn*) of Tabor;' in Josh. xix. 26, Alammelech signifies 'the king's oak;' in 1 Sam. xvii. 2, 19, and xxi. 9, 'the valley of Elah' is 'the valley of the oak.'

In several other passages 'oak' has been rendered 'plain' in our version: thus, as has been mentioned, the Plain of Mamre is the Oak (or Terebinth) of Mamre; in Judg. ix. 37, 'plain of Meonenim' should be rendered 'oak grove of the magicians;' 'plain of Moreh' is 'the oak of Moreh' (Gen. xii. 6, and Deut. xi. 30); 'the plain of Zaanaim' (Judg. iv. 11), by which Heber the Kenite pitched his tent, should be 'the oak of Zaanaim;' the tree in Nebuchadnezzar's vision (Dan. iv.) is described as an oak.

Great and remarkable oaks were favourite resorts for the performance of idolatrous rites (Hos. iv. 3), and of old under their shadow great persons were buried, as to the present day they are invariably chosen for the burial places of Arab sheikhs or saints. The strength of the Oak was as proverbial among the Hebrews as among ourselves (Amos ii. 9).

Oil tree.—The Hebrew word *'étz shamen*, *i.e.*, Oil tree, occurs three times. In Neh. viii. 15, it is translated 'pine branches;' in 1 Kings vi. 23, 'olive tree;' and in Isa. xli. 19, rightly, 'oil tree.' There can be no doubt of its being a distinct tree from the Olive, as in the passage in Nehemiah the two are mentioned together, and the text points clearly to some specific tree. Most writers have supposed it to be the False Balm of Gilead (*Balanites ægyptiaca*), and then have doubly confused matters by transferring from that tree its Arabic

name, '*zakkhum*,' to the *Eleagnus angustifolius*, or Oleaster. It cannot be the *Balanites*, because that tree does not exist except in the tropical climate of the Jordan valley, and the passage in Nehemiah speaks of *'ĕtz shamen* as growing near Jerusalem. The Oleaster (*Eleagnus*) appears clearly to be the tree intended.

ELEAGNUS ANGUSTIFOLIUS.

It is abundant in every part of Palestine above the Jordan valley, especially about Hebron, Tabor, and Samaria. It has a fine hard wood, and yields an inferior oil, but has no relationship to the Olive, which, however, it resembles in general appearance. It is a smaller tree, with long, narrow, bluish leaves, about an inch and three quarters long by half an inch wide, silvery white on the under side, and a very small blossom crowded close to the stem at the junction of each leaf, and bearing a green berry of very bitter taste.

OLIVE. Heb. *zait*, Gr. ἐλαια (*Olea europæa* of botanists).—From the time of the deluge downwards, "no tree is more closely associated with the history and civilization of man," and it was doubtless known and cultivated long before. The sign of peace, reconciliation, and plenty, the dove brought it back to the ark: "Lo, in her mouth was an olive leaf pluckt off: so Noah knew that the waters were abated from off the earth" (Gen. viii. 11). The idea, thus interwoven with primæval history, is handed down in many a symbol by the heathen poets, as well as in Scripture. Perhaps on it was founded the Grecian tradition, that the first olive branch that reached their country was carried by a dove from Phœnicia to the temple of Jupiter in Epirus. We infer from the incident that the flood must have risen gradually and gently, so as not to destroy the trees, and must, as the history tells us, have rapidly subsided, or the Olive trees would have perished.

Again, the Olive tree appears prominently in the first parable recorded in history, that of Jotham (Judg. ix. 9), where, invited to be king over the trees, it replies, "Should I leave my fatness, wherewith by me they honour God and man, and go to be promoted over the trees?"

The Olive was especially prominent among the blessings of the Land of Promise. It was "a good land, ... a land of oil, olive, and honey" (Deut. viii. 7, 8) —a land where they should at once have olive trees which they had not planted (vi. 11). And one of the marks of the anger of the Lord would be, "Thou shalt have olive trees throughout all thy coasts, but thou shalt not anoint thyself with the oil; for thine olive shall cast his fruit" (ch. xxviii. 40). So David takes the Olive as the emblem of divine blessing. He compares himself to a "green olive tree in the house of God" (Ps. lii. 8), and the children of the good man to "the olive branches round about his table," from its verdure and fruitfulness. In the Prophets, it is the type of religious privilege, of beauty, luxuriance, and strength: "The Lord called thy name a green olive tree, fair, and of goodly fruit" (Jer. xi. 16). "His branches shall spread, and his beauty shall be as the olive tree" (Hos. xiv. 6). It was the blessing of Asher, "Let him dip his foot in oil" (Deut. xxxiii. 24)—a blessing which is

recalled to the memory of every traveller who rides among the vast Olive yards which fringe the Plain of Phœnicia, or who penetrates into the rich valleys which open into the Plain of Acre, all of them in the heritage of Asher.

The Olive tree is abundant, not only in the heritage of Asher, but in every part of the Holy Land it is at this day the one characteristic tree of the country. In fact, a cursory observer has remarked, that it was the only tree he saw there. The most extensive Olive yards are on the borders of the Phœnician plain. But they are scarcely less important in the country of Ephraim: and all the valleys from the Plain of Esdraelon to Benjamin, the patrimony of Manasseh and Ephraim, are clad with olives to this day. The vale of Shechem is one noble Olive grove. The Plain of Moreh beyond it is studded with them. They form the riches of Bethlehem, and cover the lower slopes of the valleys round Hebron. The Plains of Gilead, and all the lower slopes, as well as the more fertile portions of Bashan, form a long series of Olive groves, neglected, indeed, but still ready to yield their fatness in return for the most trifling culture: and they are the wealth of the towns of Philistia and Sharon.

All round Jerusalem, the culture of the Olive is beginning to make the valleys smile once more, for security is the one thing needed to make it again a land of oil olive.

The Olive is scarcely to our Western eyes a beautiful tree; but to the Oriental, the coolness of the pale blue foliage, its evergreen freshness, spread like a silver sea along the slopes of the hills, speaks of peace and plenty, food and gladness. The trunk, too, gnarled and wrinkled, often hollow and scathed, yet yielding abundant crops to the extremest old age, and renewing itself from the inside, suggests the idea of perpetual youth. It is never more picturesque than when the old stem begins thus to restore its growth, when apparently held together by the bark alone.

Among the oldest trees in the country are those in the Garden of Gethsemane, said to have existed from the time of our Lord. There is nothing in their venerable appearance to throw doubt on their antiquity, for they must reckon many centuries; but we may be pretty certain that during the siege of Titus no trees

were left standing so close to the city. Still they may date from a period not much subsequent, and there are many Olive trees near Carthage in Africa, not more antique in appearance, which, with good reason, are believed to date from a time before the irruption of the Vandals.

The trees enclosed at Gethsemane are the oldest on the Mount Olivet. There are still several hundred scattered over the whole hill, but too few in number to give it the appearance of a wooded mount, such as it once was; and the Olive trees are now more numerous to the north and west of Jerusalem. Even as far back as the time of Nehemiah, we find the mount supplied olive branches.

But though more persistent than the Vine or the Mulberry, the Olive, when not tended, soon ceases to yield a crop, and is gradually supplanted, for self-sown trees are scarcely ever seen. The culture is very simple, but is indispensable in order to obtain a harvest. The soil underneath the trees must be ploughed or dug every spring, so as to admit the air to the roots, and no crop sown on it, as is practised with other fruit orchards. The earth also is drawn round the base of the stem to keep it moist. The tree must be grafted, and does not yield till it is from ten to fourteen years old, nor is it considered at its prime till forty years have passed over it.

The Turks tax each Olive tree annually, old or young, and thus have effectually discouraged the planting of new Olive yards. The Olive produces an amazing quantity of blossom: "He shall cast off his flower as the olive" (Job xv. 33). In spring, one may see the bloom on the slightest breath of wind shed like snow-flakes, and perishing by millions, yet enough remains to weigh the tree down with its fruit.

Isaiah refers to the gathering of the olives: "Yet gleaning grapes shall be left in it, as the shaking of an olive tree, two or three berries in the top of the uppermost bough, four or five in the outmost fruitful branches thereof" (xvii. 6). The olives are gathered by the boys and women climbing into the trees and beating and shaking the branches. But there must be always a gleaning left—two or three berries in the uppermost boughs; and after the owners have left the tree, the gleaners are entitled to follow, and the poorest of the

poor contrive by industry to gather enough to supply their mess of pottage, or, perhaps, their winter lamp: "When thou beatest thine olive tree, thou shalt not go over the boughs again: it shall be for the stranger, for the fatherless, and for the widow" (Deut. xxiv. 20). There are no fences in the Olive yards, but each tree has its own proprietor, the ground being the common tenure of the village, and the trees being allotted, and bought and sold each as a separate property.

The oil fats or olive presses are likewise common to the inhabitants, and may generally be noticed at the entrance of the village. A wooden screw and vice press

OLIVE.

a large circular stone upon the olives, while a stone-trough beneath receives the oil. The sites of many of the deserted towns of Judah bear witness to the former abundance of the Olive, where it now no longer exists, by the oil presses, with their gutters, troughs, and cisterns hewn out of the solid rock. I have seen many of these far south of Hebron, where not an Olive has existed

for centuries, and also many among the deserted thickets of Carmel.

The produce of oil is enormous—from ten to fifteen gallons a tree—and the fruit of the olives is one of the first necessaries of life in the East. Not only does the lamp depend upon it, for candles are rarely used and are much more costly, but it supplies the place of butter; every dish is cooked with it, and the bread is dipped in it. The soap of the country is exclusively made from it. The berry, pickled, is the husbandman's only relish; and when he goes to the field to his day's work, his dinner consists of a handful of olives wrapped up in the thin tough barley cake. Habakkuk, therefore, strongly attests his faith in God when he says, "Although . . the labour of the olive shall fail . . . yet I will rejoice in the Lord" (ch. iii. 17, 18). It was also used as a medicine; was valuable for wounds and bruises (Luke x. 34); was rubbed on the body after the bath; was employed to dress the hair (Ps. xxii. 5; Matt. vi. 17); to mix with the offerings in sacrifice (Lev. ii. 1); and for the anointing of priests, kings, and prophets.

The wood, which is very handsome, of a rich amber colour and finely grained, and is still largely employed in the finest cabinet work, supplied the cherubim, the doors, and the posts for the temple of Solomon (1 Kings vi. 23, 31, 33).

The two witnesses in Revelation (ch. xi. 4) are represented as "two olive trees standing before the God of the earth," with evident reference to the two olive trees in the mystic vision of Zechariah (iv. 3, 11–14).

Olive, Wild (ἀγριέλαιος), mentioned in Rom. xi. 17–24, must not be confounded with the Oleaster or Oil tree. The Olive, like most other fruits, requires to be grafted, and the suckers from the tree, as well as the seedlings, if ungrafted, produce only a diminutive and worthless fruit.

St. Paul makes this fact the basis of his forcible allegory. The Gentiles are the 'wild olive' grafted in '*contrary to nature*' upon the 'good olive.' In nature, the *good* is always grafted upon the *wild*. In the Church of Christ the contrary process succeeds. The mercy of God is shown by grafting the Gentiles, a *wild* race, contrary to the nature of such operations, into the *good* Olive tree of the Church, and causing them to flourish there, and bring forth fruit unto eternal life.

PALM TREE. Heb. *tamar*, Gr. *φοίνιξ* (*Phœnix dactylifera*).—The Palm tree has ever been intimately associated with Palestine. The very name by which the land was known to the Greeks and Romans, 'Phœnicia,' is 'the land of palms.' When Vespasian wished to commemorate on his coins the capture of Jerusalem by Titus, he represents Judæa as a woman, sitting weeping under a Palm tree.

At present 'it breaks the uniformity of the Syrian landscape by the rarity of its occurrence, no less than

GROVE OF PALM TREES.

by its beauty.' Yet it is even now not so rare as has been supposed, but was doubtless far more common in former times. Belonging to a family of trees essentially tropical, the Palm tree at once arrests the eye of a Western traveller wherever it occurs, whether towering in solitary grandeur in the desert wastes of Arabia, where it marks by its presence some hidden source of moisture, or waving its feathery plumes over the orchards and orange groves of Philistia and Sidon.

The plants of the Palm family are characterized by their tall branchless stems, their huge fan-shaped leaves, their flowers growing on a single or branched tuft,

covered by a spathe or sheath, some of which will contain 200,000 flowers. The stem of the Date Palm exhibits what is called the endogenous mode of growth, the hardest part being on the outside, while it has no bark, like exogenous trees. The leaves are pinnate, often twelve feet long, and are sometimes called branches in Scripture (Lev. xxiii. 40; Neh. viii. 15). They form a graceful, umbrella-shaped tuft at the summit of the tall stem. The trunk of the tree does not increase from year to year like other trees, but only rises higher, sending forth a new coronet of leaves each year, while the lower circle, which may be six or seven years old, gradually withers away. Thus the stem of a tree, not twenty feet high, is as thick as those of trees which are from 50 to 100 feet in height. The centre of the tree is soft and pithy, and the trunk is rather a solid mass of fibre than true timber. Consequently, though of great value there for rafters, beams, and gate-posts, it is quite useless for the other applications of ordinary timber, such as furniture or utensils.

The Palm tree is peculiarly characteristic of sandy and semi-tropical deserts, but it flourishes better in rich and well-watered soils, where the climate is sufficiently hot. Its range extends from the sandy plains of Scinde and Western India, across Asia, along the banks of the Euphrates and Tigris, thence to Palmyra, and thence to the coasts of Syria. It is the principal tree of Arabia and Egypt; abounds in Nubia and Abyssinia; and is the staple of the oases which stud the Sahara as far as the Atlantic. In favoured localities it exists on all the southern Mediterranean shores, though not always ripening its fruit. It gave name to a town in Crete, Phenice, mentioned in Acts xxvii. 12.

Several other places mentioned in Scripture are connected with the Palm tree. We are told that in the journeying of the children of Israel from Egypt to Sinai, they "came to Elim, where were twelve wells of water, and threescore and ten palm trees: and they encamped by the waters" (Ex. xv. 27). These wells are called 'fountains' in Numb. xxxiii. 9, and the station has generally been identified with existing Palm trees and springs in the Wady Ghurûndel. '*Elath*' or '*eloth*,' another plural form of the same word, probably refers to the group of Palm trees at Akabah, at the head of the eastern gulf of

the Red Sea, near Ezion-geber, the port of Solomon [See Deut. ii. 8; 1 Kings ix. 26; 2 Kings xiv. 22.] *Elim* or *eloth* signifies 'trees;' and though the term was applied to the Terebinth in Palestine, where that was the conspicuous tree, yet it is probable that in the desert it would similarly designate the Palm, *the* tree of the country.

Still earlier than these is the incidental reference to the Palm tree in patriarchal history, implied in the name of Hazezon-tamar (Gen. xiv. 7), which is, by the reference in 2 Chron. xx. 2, unmistakably identified with the well known Engedi, the modern Ain Jidy, on the western shores of the Dead Sea. Its name signifies 'the felling of the palm trees;' it was the contemporary of Sodom and Gomorrah—an existing city when Hebron first arose. Through its groves of Palm trees passed the Assyrian hordes of Chedorlaomer, on the first great organized expedition recorded in history. Its Palm trees continued for many subsequent centuries: "I was exalted like a palm tree in Engaddi," says the son of Sirach (Ecclus. xxiv. 14): and later still the Palm groves of Engedi are mentioned for their beauty, alike by the Jewish historian Josephus, and the Roman naturalist Pliny.

Now not a Palm remains in these lonely recesses, though the shores are fringed with the gaunt trunks of this tree washed down the Jordan, or from the other side. But they have left the evidence of their former abundance in the deep glens which open on the little plain. Copious springs of fresh water percolate through the cliffs on all sides, and perform the functions of a dropping well, rapidly petrifying the vegetation which clings to the rocks, and lining the valleys with a thick crust of carbonate of lime. On breaking this soft incrustation, we found great masses of palm leaves quite perfect, and even whole trees petrified where they stood, grown as it were to the rock, entire from the root of the stem to the last point of the frond.

The little embayed recesses on the east side of the Dead Sea, at the mouths of the Arnon and the Callirrhoe, overshadowed with clumps of Date Palms, give an idea of what the much larger opening of Engedi must have been of old. Another '*Tamar*' or Palm is mentioned in the vision of Ezekiel, as the point from which the

southern border of the land was to be measured eastward and westward. This is the Thamara of other authors near the south-west end of the Dead Sea.

The name again occurs in Baal-tamar, *i.e.*, "the sanctuary of the palm" (Judg. xx. 33), doubtless from the same feature of the Palm tree in its scenery. This place being near Gibeah of Benjamin, where from the climate the Palm tree can never have been very plentiful, may have been identical with the famous Palm tree of Deborah near Bethel (Judg. iv. 5), probably a well known and solitary land-mark.

Although not implied by its name, yet the Palm tree is associated with almost every reference to Jericho in Sacred History. The first mention of the city is when Moses from the top of Pisgah gazed over the panorama of the Land of Promise, and looked down on "the plain of the valley of Jericho, the city of palm trees" stretched as it were beneath his feet (Deut. xxxiv. 3). 'In the city of palm trees' dwelt for a time the children of the Kenite, Moses' father-in-law (Judg. i. 16). Soon afterwards Eglon, king of Moab, took possession for a time of "the city of palm trees" (iii. 13); for though the city and its walls had never been rebuilt, yet the rich and well-watered plain must have had many inhabitants, dwelling perhaps in tents, and certainly gathered in some numbers in the adjoining city of Gilgal, to till its gardens, and tend its teeming forests of fruit trees.

The Palm groves continued throughout the period of the kings, for we are told (2 Chron. xxviii. 15), that when Israel, conscience-stricken, resolved to restore the captives they had taken from Judah in the reign of Ahaz, they brought them down to Jericho, the 'city of palm trees.'

Yet more valuable and flourishing were they in the time of the Herods, when the gardens of Jericho, with their Palms and Balsam, were the richest portion of the royal manor. Again and again they are referred to by Josephus, and by classical writers, by Strabo, Horace, and Pliny, and later still by Galen and Justin.

But the Palm tree requires, like the Olive, some slight care from man; and, unless growing by a fountain or stream, needs periodical watering: thus the Palm groves of Jericho have gradually given place to the Thorn tree and other wild trees, till a century ago Dr. Shaw could

only say that there were several of them at Jericho Recently it has been stated, that the last Palm tree had perished there. This, however, is not strictly the case, as we discovered one wild Palm of considerable size, with a clump of young ones round it, in the edge of the stream, a little below the modern village.

It is probable that in ancient times the whole Jordan valley, from the shores of Gennesaret to the extremity of the Dead Sea, was stocked with Palms. It is recorded by Josephus that they abounded at Gennesaret. Below the lake, on the east side, we found many straggling trees by the sides of the streams, from the Jarmuk to Mount Gilead. There are some in the Plains of Shittim; they abound, as has been said, at the mouths of the rivers of Moab, and are found in the Ghor es Safieh, at the south-east corner of the Dead Sea. The shores of that mysterious lake are fringed from north to south by hundreds of trunks of Palm trees, preserved from decay by the saturated brine, most of which must have been washed down the Jordan, and remained perhaps for ages. They tell unmistakably of a time when the valley was indeed *Phœnicia*, and the Palm the predominant wood.

Though it could never be a very common tree in the upper country, yet it was common on the coasts, and to this day it occurs on all the maritime plains, and is profitably cultivated at Jaffa, Ramleh, Caiffa, Acre, Tyre, Sidon, and Beyrout. It is, however, seldom found in Western Palestine in a state of nature. This may be accounted for by its being a dicœcious tree, *i.e.*, having its male and female blossoms on different trees; and if the female blossoms are not impregnated, which is usually done by tying a bunch of male blossom in each fruit-bearing tree, the seed is barren. The male trees require less care, are much fewer in number, and are generally left to grow outside the groves. Consequently, when in time they decayed, the stock, if not renewed, would gradually perish.

We have several allusions, besides the mention of the Palm tree of Deborah, to the existence of the Palm in other parts of Palestine, especially near Jerusalem. Thus, after the return from Babylon, when the Feast of Tabernacles was kept, the people were to go out to the Mount [of Olives], and fetch, among other boughs, 'palm branches' to make booths (Neh. viii. 15). This was in literal

accordance with the original institution in Leviticus (xxiii. 40), to take among others "branches of palm trees" for the purpose.

The Mount of Olives continued to be graced by Palm trees to the time of our Lord, when at His last triumphant entry into Jerusalem from Bethany, the people "took branches of palm trees, and went forth to meet him" (John xii. 13). Bethany, at the eastern side of the Mount, means the 'house of dates;' but now the Palm exists neither there nor on Mount Olivet itself, though several fine and ancient trees still wave among the buildings of Jerusalem within the walls. From the Gospel incident, here alluded to, has arisen the English custom of carrying boughs of willows, as a substitute on Palm Sunday, and calling them Palms:

> "And willow branches hallow
> That they palmes do use to call."

In the gardens of Jenin (*Engannim*, the garden house, 2 Kings ix. 27), at Nablous (Shechem), at Beisan (Beth shean), and at several sheltered villages near Nazareth, the Palm still exists; and doubtless farther search may reveal many other spots where a few of these relics of ancient culture linger on.

The city that Solomon built in the wilderness, between Damascus and the Euphrates, *Tadmor* (or, according to some readings of 1 Kings ix. 18, *Tamar*), is, like *Hazezon Tamar*, the old name of Engedi, named from its Palm trees, afterwards translated literally into Palmyra, "the name that, by its signification in the Syriac as well as the Latin language, denoted the multitude of palm trees which afforded shade and verdure to that temperate region."—*Gibbon*, ii. 23.

The Palm trees of Palmyra are as familiar to the traveller now as they were to the merchants of old.

We may observe that the Palm in its wild state, when its decayed or withering leaves are not disturbed for the purpose of climbing to its fruit, has not the slim and graceful appearance of the cultivated tree. Its leaf-stalks hang down undetached from the stem, and form an impenetrable rampart round the tree, altogether concealing its trunk. Such was the Palm we noticed near Jericho, and such are many of the Palms in the desert.

One of the most familiar comparisons in Scripture is that of Ps. xcii. 12: "The righteous shall flourish like

the palm tree: he shall grow like a cedar in Lebanon." Here the life of the righteous may be compared to the Palm tree for many reasons. It flourishes in a barren soil; it requires constant moisture; it is a lofty tree, a straight tree; it is always growing so long as it lives, and it is always green, and always bears fruit, as far as possible from earth, and as near as possible to Heaven. We may add, too, the elasticity and upward growth of its fibre, even when loaded with weights.

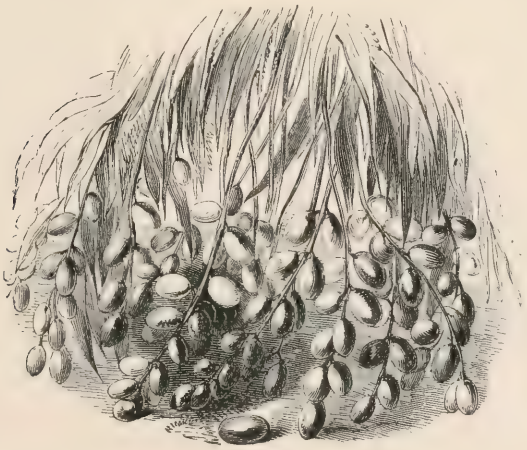
WILD PALM TREE.

In the Revelations, the saints are described as "clothed with white robes, and palms in their hands" (vii. 9), an image probably drawn from the custom by which, in many of the Greek games, the victors carried palm leaves in the procession. This, however, was not exclusively a classical allusion, as may be gathered from the palm leaves of our Lord's triumphal entry into Jerusalem; and from several passages in the Apocrypha in Mac-

cabees (1 Mac. xiii. 51; 2 Mac. x. 7, and xiv. 4; 2 Esdr. ii. 44), where palm leaves are mentioned as the symbols of triumph.

From the grace and beauty of the tree it was frequently taken as a woman's name, as in the case of the daughter-in-law of Judah (Gen. xxxviii. 6); David's daughter (2 Sam. xiii. 1); and Absolom's sister (2 Sam. xiv. 27), whose beauty was remarkable.

In like manner it was a favourite architectural ornament, and the palm leaf is the one peculiar and graceful ornament which arrests our notice in examining the few



DATES.

remaining relics of the architecture of the Herodian epoch. It appears on the capitals of the pillars, and on the friezes; both in the substructures of the temple of Jerusalem and in the tombs, among the ruins of Tell Hûm and Kedes, and in the baths of Solomon in the king's garden at Urtas.

Accordingly, we find it repeatedly mentioned among the architectural ornaments of Solomon's temple, whether generally, or sculptured on the walls, doors, or pillars (bases) (2 Chron. iii. 5; 1 Kings vi. 29–36). In like manner it is repeatedly mentioned in the symbolical vision of Ezekiel's temple (ch. xl. xli.) as a predominant ornament in all parts of the building.

It is a common saying among the Arabs that the Palm has as many uses as there are days in the year. In the oases, where it is the principal tree, every part of it is utilized. Besides its employment for building purposes, a pleasant drink is made from its juice; wine is distilled from its sap, and a spirit is fermented from it. The crown of barren trees is boiled as a vegetable; sugar is manufactured from the syrup; mats, baskets, and all sorts of utensils are manufactured from its leaves; horses are fed on the fruit-stalks, and camels on the pounded stones.

Important as its fruit, the *date*, is as a staple of food, it is curious that there is only one, and that disputed, reference to it in the Bible, viz. Cant. vii. 7: "Thy stature is like to a palm tree, and thy breasts to clusters"—where our version supplies 'of grapes,' instead of what the context requires 'of dates.' There are several other *possible* allusions to the fruit, which must have been common and familiar among the Jews.

Pine tree. Heb. *tidhar*. — Thus translated in Isa. xli. 19: "I will set in the desert the fir tree, and the *pine*, and the box tree together"; and in ch. lx. 13: "The glory of Lebanon shall come unto thee, the fir tree, the pine tree, and the box together,"—where '*tidhar*' must signify some conspicuous tree growing on the mountains of Lebanon. No commentators, ancient or modern, have been able to identify the tree intended, though the Elm, the Larch (not a Palestine tree), the Plane, and the Pine have been guessed at.

The only clue to an interpretation is the signification of the Hebrew root, whence the word is derived, which signifies to *revolve* or to *continue*—the latter not being in any way applicable to the *Pine*, which is the least probable rendering. The weight of evidence is, perhaps, in favour of the Elm, a species of which well known tree (*Ulmus campestris* [?]) grows on Lebanon, though doubtfully indigenous in *Southern* Palestine. It would, therefore, best suit the requirements of the text.

In Nehemiah viii. 15 'pine branches' is the rendering in our version for ''*etz shamen*,' which signifies the Oil tree or Oleaster, as it is in other passages rightly translated. [For the Pines of the Holy Land, see Fir tree.]

Pomegranate. Heb. *rimmôn*. — Identical with its Arabic name, *rummân*, is the *Punica granatum* of bota-

nists, a fruit-bearing tree, or rather shrub, of the Myrtle family, which is cultivated through all the warmer parts of the Old World, from Northern India through Persia, and in all the countries bordering on the Mediterranean. It is indigenous in North Africa and Southern France, and flourishes in Bermuda and many of the West Indian islands. It is evergreen in the tropics, and forms rather a collection of small stems, like coppice-wood, than a single tree, nor does it often exceed eight or ten feet in height. The leaves are lanceolate, glossy, and small, of a very delicate greenish-

POMEGRANATE.

red colour; when young forming a striking contrast to the blue foliage of the Olive, and gradually assuming a clear pea-green colour. The bell-shaped blossom is extremely beautiful and conspicuous, varying from scarlet to a deep orange red, and the fruit when ripe is of a bright-red colour, as large as an orange, and crowned with its calyx, which adds much to its grace of form. I have tasted it nearly ripe in July, but the main crop is not gathered till September. It continues to throw out a succession of blossom from March to June.

In the neighbourhood of towns and under Carmel the Pomegranate is often wild, but is then very bitter and astringent. There are two sorts cultivated in orchards,

the sweet and the sour, contrasting in taste like the orange and lemon, though the appearance of the fruit is precisely similar.

The Romans, who introduced the tree from Carthage, gave it the name of *Punicum malum*, the Carthaginian Apple; and our name Pomegranate is derived from the Latin 'grained apple,' from the striking appearance of the bright pink pips packed in compartments, separated by a white membrane, shining like rubies, and beautifully arranged.

The Pomegranate was early cultivated in Egypt, for we find the Israelites complaining in the wilderness: "This is no place of seed, or of figs, or of vines, or of pomegranates" (Numb. xx. 5). Canaan too was promised as "a land of . . . vines, and fig trees, and pomegranates" (Deut. viii. 8); and, accordingly, when the spies came to the valley of Eshcol, they not only cut down a branch with one cluster of grapes, but also "brought of the pomegranates, and of the figs" (Numb. xiii. 23).

Several towns and villages in Palestine bore the name of Rimmon or Pomegranate; as Rimmon, on the frontier of Judah (Josh. xv. 32; 1 Chron. iv. 32; Zech. xiv. 10), Gath-rimmon, one of the Levitical cities in Manasseh (Josh. xxi. 25, and 1 Chron. vi. 39), and Rimmon in Zebulon (1 Chron. vi. 77). We read, in 1 Sam. xiv. 2, of Saul tarrying under a Pomegranate tree, which must have been some particular tree of unusual size.

An orchard of Pomegranates is mentioned in Cant. iv. 13, and its budding in other passages of the same poem. The temples [lit. cheeks] of the beloved are compared, in ch. iv. 3, to "a piece of pomegranate within thy locks," alluding doubtless to the lovely rosy colour of the fruit.

The juice was and still is expressed for a cooling drink, or sherbet, and sometimes also fermented into a light wine. Thus Solomon speaks of "spiced wine of the juice of my pomegranate" (Cant. viii. 2). It is now commonly used in the East with sugar or spices, and then strained before being fermented. The wine of the Pomegranate does not keep long, and is very light.

The bark and the rind of the fruit are powerful astringents, and are used medicinally in the East, but are chiefly valuable as tannin. The rind of the wild

Pomegranate is still carefully collected in Morocco and the Sahara, and is used exclusively for the preparation of the finest sort of Morocco leather, giving it a dull red colour. The yellow Morocco leather, on the contrary, is tanned with a peculiar fungus.

The graceful shape of the Pomegranate was selected as one of the ornaments on the skirt of the high priest's blue robe and ephod, alternating with the golden bells (Ex. xxviii. 33, 34; xxxix. 24–26), and hence was adopted as one of the favourite devices in the decoration of Solomon's temple, being carved on the capitals of the pillars (1 Kings vii. 18, &c.). Whether the design was taken from the fruit or the flower, it would form a graceful ornament. We have frequently noticed the Pomegranate sculptured on fragments of columns among the ruins of Oriental temples.

The Syrian deity, Rimmon, has been supposed by some to have been a personification of the Pomegranate, as the emblem of the fructifying principle of nature, the fruit being sacred to Venus, who was worshipped under this title. Hadadrimmon is mentioned in Zechariah xii. 11, Hadad being the sun-god of the Syrians; and when combined with the symbol of the Pomegranate, he stands for the sun-god who ripened the fruits, and then, dying with the departing summer, is mourned "with the mourning of Hadadrimmon."

Poplar.—The Hebrew word *libneh*, *i.e.*, 'white,' from the same root as *Lebanon*, 'the white mountain,' occurs only twice, viz. in Gen. xxx. 37, and Hos. iv. 13, and in both is translated 'poplar': "Jacob took him rods of green poplar, and of the hazel and chesnut tree; and pilled white strakes in them, and made the white appear which was in the rods." "They sacrifice upon the tops of the mountains, and burn incense upon the hills, under oaks and poplars and elms, because the shadow thereof is good."

Several commentators have considered the Storax tree (*Styrax officinalis*) to be the tree intended. It grows abundantly in most parts of Palestine, and in Armenia, and has a white blossom and pale leaves, with a white down on the under side; consequently it would correspond very well with the signification of the name *libneh*, 'white.' It yields gum storax. [See Stacte, for a description of the Storax tree.]

But the passage in Hosea speaks of the '*libneh*' as a large tree, under the shadow of which idolatrous rites were performed. The Storax, on the contrary, is nothing more than a very bushy shrub, rarely more than twelve feet in height, and neither from its size or form would it be selected as a tree under the shadow of which sacrifices or incense might be offered. The chief argument in favour of the Storax-tree is the similarity of its Arabic name, '*lubna*,' with the Hebrew '*libneh*.'

There seems, therefore, no difficulty in accepting the translation of our version, *Poplar*. Of all forest trees none would so naturally claim the epithet of '*libneh*,' the 'white,' as the White Poplar. Four species, if not six, of Poplar are found in Palestine. Of these, two, and those the most frequent, are probably the trees alluded to in Scripture: *Populus alba*, the White Poplar of our own country, and *Populus euphratica*, the Euphrates Poplar, which is very similar to the former in its silvery hue.

We observed this tree very common along the banks of the Jordan, and in the lower country, and it derives its specific name from its abundance in that very country where Jacob peeled the rods, the land of Haran, by the Euphrates and the Tigris. Hosea, on the contrary, is speaking of a tree on the hills, where we did not meet with the Euphrates Poplar, but where the closely-allied species, *P. alba*, grows abundantly. We saw it in various parts of Galilee, Lebanon, and on Mount Hermon. Four species of Poplar grow near Damascus, but the two named above appeared by far the most numerous. Other species are *P. tremula*, *P. dilatata*, and *P. nigra*.

Shittah tree. Shittim. Heb. *shittah*, *shittim*.—The tree is mentioned once, "I will plant in the wilderness the cedar, the shittah tree, and the myrtle, and the oil tree" (Isa. xli. 19), as one which would enrich and beautify the desert. Its wood is called *Shittim* wood, and is repeatedly mentioned in Exodus as the principal timber material employed in the construction of the tabernacle. Of it were formed the boards for the tabernacle, and their cross-bars (Ex. xxvi. 15, 26); the ark of the covenant and its staves (ch. xxv. 10, 13); the table of shew-bread and its staves (ch. xxv. 23, 28); the pillars on which to hang the veil of the holy of holies (ch. xxvi. 32, 37); the altar of burnt offering, and the staves to

carry it (ch. xxvii. 1, 6); and the altar of incense and its staves (ch. xxx. 1, 5). From the fact of Shittim wood being the only timber mentioned in the list of the offerings of the people in the wilderness (Ex. xxv. 5), it would appear to have been the only available wood at hand.

There can be no question as to the identity of the

ACACIA SEYAL.

Shittah with the Acacia, the only timber tree of any size in the Arabian desert. The species of Acacia there found is the *Acacia seyal*, a gnarled and thorny tree, somewhat like a solitary Hawthorn in its habit and manner of growth, but much larger. It flourishes in the driest situations, and is scattered more or less numerously over the whole of the Sinaitic peninsula. It is also abundant in the many ravines which open on the

Dead Sea at Engedi, and all along its western shores, where it forms a tree from which planks four feet in diameter might be cut. It flourishes most in the dry beds of extinct water-courses, as at the south-west end of the Dead Sea, and where no other tree can find moisture. It is a very conspicuous feature wherever it occurs. The timber is very hard and close-grained, of a fine orange-brown colour, with a darker heart, and admirably adapted for fine cabinet work. Its leaves are small and pinnate, and in spring it is covered with its round tufts of yellow blossom, which grow in clusters round the branches, like little balls of fibre, and have gained for it its poetical epithet of the 'yellow-haired acacia.' It belongs to the natural order *Leguminosa*, and its seed is a pod, like that of the Laburnum.

But it is best known for its commercial value, as yielding the gum arabic of trade and medicine, which is exported in great quantities from the Red Sea. The gum exudes from the tree spontaneously, as I have often observed in hot weather, but is also obtained more systematically by making incisions in the bark; and the Arabs not only collect it for sale, but for food in times of scarcity. They also say that it allays thirst. The bark, which is a powerful astringent, is used by the Bedouin for tanning yellow leather, and the camels are fed on its thorny foliage.

The burning bush of Moses (Ex. iii. 2), called '*seneh*' in Hebrew, was no doubt an Acacia, the Egyptian name of which is the equivalent, '*sunt*,' while the Arabic is '*seyal*.' The species is the *Acacia nilotica*, found also in the desert, and rather smaller than the true Seyal.

There are several other species of Acacia found in Palestine, but all similar in habit and appearance; as the *Acacia farnesiana* on the coast, the *A. serissa* in some of the wadys, and *A. tortilis* in some of the southern wadys. These must not be confounded with the tree commonly called Acacia in England, which is an American plant of a different genus, with *white* papilionaceous blossoms—the *Robinia pseudo-acacia*.

Several places in Scripture are named from the Acacia. Thus, in Joel iii. 18, "And it shall come to pass in that day, that the mountains shall drop down new wine, . . . and a fountain shall come forth of the house of the Lord, and shall water the valley of Shittim"—a place now

unknown, but probably near Jerusalem, and named from its acacias.

Again, the last camping-place of Israel on the east side of Jordan was in the Plains of Shittim, the rich and sultry Plain of Moab, on the north-east corner of the Dead Sea, opposite Jericho, and as well watered, of greater extent, and of unbounded fertility. Here, enervated by the luxurious climate and products, Israel was seduced into sin and profligacy, and joined in the licentious rites of Baal-Peor. The northern extremity of their camp is stated to have been from Abel-Shittim, *i.e.*, the 'moist meadows' (or 'marshes') 'of the acacia;' the modern Keferein, where the fertile oasis begins. In front pushes out a long strip of barren and salt-saturated plain, about five miles in width, utterly bare near the Jordan; but, nearer, the rich meadows, studded with old and gnarled acacias, which we found scattered here and there, attesting by their presence the appropriateness of the name, and the antiquity of their possession. They form the connecting link between the open desert and the watered meadows behind, which are cultivated for corn, cucumbers, and indigo.

SPICERY.—The word '*nechôth*,' thus translated, occurs twice—in Gen. xxxvii. 25, "Ishmeelites came from Gilead with their camels bearing *spicery* and balm and myrrh, going to carry it down to Egypt;" and ch. xliii. 11, where it is enumerated among the presents Jacob sent by his sons to the governor of Egypt: "Carry down the man a present, a little balm, and a little honey, *spices*, and myrrh, nuts, and almonds." Probably, the *nakah* ('spices') of 2 Kings xx. 13; Isa. xxxix. 2, stored up by Hezekiah in his treasure-house, refers to the same substance.

It seems clear that it is not a general term, but the produce of some specific plant; Celsius and Bochart conjecture the Storax [see STACTE], but the most probable explanation identifies the *nekôth* with the Arabic *naka'at*, the gum tragacanth, obtained from the well known group of Leguminous plants, *Astragalus*. The gum tragacanth of commerce is collected chiefly from the *Astragalus tragacantha*, but many other species of the genus yield it freely. There are upwards of twenty species of *Astragalus* in Palestine, and we ourselves collected at least fifteen species. They grow at all elevations from the shores of the Dead Sea to the top of

Hermon. Those sorts from which the gum is obtained are dwarf woody shrubs, very stunted in growth, with long pinnate leaves, terminated by a spiny mid-rib, protected by a dense fence of long thorns, covering clusters of axillary flowers, which in most of the species are yellow, though several species have white or purple blossoms.

The gum exudes plentifully under the heat of the

ASTRAGALUS TRAGACANTHA.

sun on the leaves, thorns, and extremity of the twigs, and is collected by passing a cloth or bunch of threads over the shrub. This collects the viscous exudation in the same manner as ladanum is gathered. According to Tournefort, it is also collected in the Island of Candia by puncturing the bark, when it streams out under the sun's rays, and dries into the form of lumps or long worms. But this must be a larger kind of shrub

than the Wild Tragacanth of Palestine, where the gathering of the gum can scarcely now be reckoned an article of commerce, being only pursued by a few shepherds at their leisure.

STACTE.—This Greek word (*στακτὴ*), signifying a drop or exudation, is employed in Ex. xxx. 34 to express the Hebrew *nataf*, which bears the same meaning. In Job xxxvi. 27 it is used to express a drop of water; in Exodus it is the name of one of the ingredients used in

STYRAX OFFICINALE.

preparing the holy incense. The best authorities identify it with the gum of the Storax tree (*Styrax officinale*).

This is a very beautiful, perfumed shrub, which grows abundantly on the lower hills of Palestine, and has by some been taken for the 'poplar' of Scripture from its white hue. It can scarcely be called a tree, though it is a large shrub. The bark is very smooth and pale-coloured, the leaves single, ovate, and with a smooth white film on the under side. The blossoms are very like those of the orange in colour, size, and perfume, but grow most abundantly in small spikes of four or five. Nothing can

be more lovely than the appearance of the Storax in March, when covered with a sheet of white bloom, wafting its perfume through the dells of Carmel and Galilee, where it is the predominant shrub, and contrasts beautifully with the deep red of the Judas tree growing in the same localities. We found it equally abundant in the warmer parts of Gilead and on the lower slopes of Lebanon; but it is rather a tender tree, and does not thrive in exposed situations. The Syrians value its gum highly, and use it medicinally as an emulcent in pectoral complaints, and also in perfumery. The liquid storax of modern commerce is the product of an Eastern tree of a different order. [See also POPLAR.]

SYCAMINE.—The Greek word *συκάμινος*, translated 'Sycamine tree,' occurs once in the New Testament: "And the Lord said, If ye had faith as a grain of mustard seed, ye might say unto this sycamine tree, Be thou plucked up by the root, and be thou planted in the sea; and it should obey you" (Luke xvii. 6). The Sycamine must be distinguished from the *Sycamore*, elsewhere mentioned. It is the well known Black Mulberry (*Morus nigra*), which is still known in Greece by the name '*sycamenea*,' while the White Mulberry is called '*mourea*.

Both the White and Black Mulberry trees are common in Palestine, and their cultivation has, doubtless, increased since the introduction of the silkworm, fed on their leaves, and the rearing of which is the staple industry of the peasantry in the Lebanon. The Mulberry is also grown for rearing silk about many of the villages between Jerusalem and Nablous (Shechem), and often covers the terraced hill-sides. Though cultivated rather for its leaf than its fruit, yet the Mulberry is of some value, and is largely used in summer, especially about Damascus, where the fruit is sold in great quantities, and is expressed to make a kind of sherbet, a pleasant cooling drink, sweetened with honey and flavoured with spices. The Mulberry belongs to the same natural order as the Fig tree, and is of very curious construction, though in appearance like a blackberry, each pip being the produce of separate blossoms, which are crowded closely together. From the ordinary occurrence of the tree it would very naturally be seized by our Lord, perhaps standing under its shade at the moment, as an illustration for his discourse. The

Mulberry tree of our version is probably the Aspen Poplar. [See MULBERRY.]

SYCAMORE, or SYCOMORE. Heb. *shikmin, shikmoth;* Gr. *συκομορέα;* Lat. *Ficus sycomorus.*—Sycamore fig, or fig-mulberry, is frequently mentioned both in the Old and New Testaments. This tree, which is a species of fig, and allied to the Banyan tree of India, must not be confounded with our commonly-called Sycamore or Plane tree, which is not at all connected with either the Fig or

SYCOMORE. (*Ficus sycomorus.*)

Plane tree, but is really a Maple (*Acer pseudo-platanus*), and only resembles the others in the shape of its leaves.

The fruit of the Sycomore is a fig, and its leaf is like the Mulberry, whence its Greek name, from *σῦκον, fig*, and *μόρον, mulberry*. The tree grows to a large size, sometimes attaining fifty feet in circumference, and is evergreen; and the fruit shoots forth on dwarf sprigs from all parts of the stem, or stalks quite distinct from the leaf-bearing twigs; sometimes only one, but more generally several, figs are on each twig. They are of the shape and structure of the common fig, having an acid juice, and are formed by numerous flowers within on a

hollow receptacle. The fruit is edible, but very poor, sweetish, and much smaller than the fig.

The Sycomore was and is one of the common trees of Egypt, and its wood was employed for the manufacture of mummy cases, and for doors, boxes, and all articles of furniture. It is very light and porous, but its durability is proved by the soundness of the mummy cases after being entombed for thousands of years. Probably, however, the Egyptians had not much choice, as it is almost the only timber tree of any size common in that country. It is very susceptible of cold, and cannot bear frost. This, as well as its abundance in Egypt, is alluded to by the Psalmist: "He destroyed their vines with hail, and their sycomore trees with frost" (Ps. lxxviii. 47). In Palestine it only grows in the mild climate of the maritime plains, Phœnicia, Acre, and Sharon, and in the hot Jordan valley, in the former of which frost is very rare and slight, while in the latter there is a tropical temperature throughout the year. Sycaminopolis, near the modern Caiffa, derived its name from the Sycomore fig trees, which still flourish on the ancient site. There are also some noble trees on the Phœnician plain.

So valuable was this tree that David appointed a special overseer "over the olive trees and the sycomore trees that were in the low plains" (1 Chron. xxvii. 28), *i.e.*, in the low-lying Jordan valley, for the tree never exists in the hill country or high lands. No less than three times is it mentioned that Solomon made "cedars to be as the sycomore trees that are in the vale for abundance" (1 Kings x. 27; 2 Chron. i. 15, ix. 27), where the Jordan valley is again referred to as their locality. Isaiah, again, contrasts the Sycomore with the more valuable Cedar, when he represents Ephraim and the inhabitants of Samaria, saying, "The sycomores are cut down, but we will change them into cedars" (ix. 10), *i.e.*, we will build palaces of costly cedar in lieu of houses built of the common sycomore which have been destroyed.

In growth, with its low-spreading branches and dark foliage, it recalls the English Oak, and its shade is most pleasing. It is, consequently, a favourite wayside tree, and is often planted by an Arab café to tempt the wayfarer to rest. But with the Turks, as in the time of David, it is a royal tree, and the government claim rent

for the produce wherever it is planted. It is very easy to climb, with its short trunk, and its wide lateral branches forking out in all directions; and would naturally be selected by Zacchæus (Luke xix. 4) as the most accessible position from which to obtain a view of our Lord as He passed.

There are still a few gnarled and aged sycomores among the ruins by the wayside at ancient Jericho, and by the channel of the Wady Kelt.

FRUIT OF THE SYCOMORE.

The inferiority of the fruit, insipid and woody, is probably hinted at in the prophet's vision, when he pronounced the figs in the second basket to be "very naughty figs which could not be eaten, they were so bad" (Jer. xxiv. 2), and which were an apt emblem of the rejected Zedekiah and his people. In order to ripen the fruit properly, or make it palatable, it must be punctured, or the top scraped before it is quite ripe, that the acrid juice may be discharged. It is probable that the prophet Amos alludes to this custom, when he tells the priest of Bethel, "I was an herdman, and a gatherer

of (literally, one who scraped or cut) sycomore fruit" (vii. 14). Humble, indeed, must have been the position of such a labourer, and abject the prophet's poverty.

The Sycomore bears continuously, and I have gathered the figs from November to June. The leaves are downy on the under side, with an aromatic fragrance.

TEIL TREE, TEREBINTH, OR TURPENTINE TREE.—The Hebrew *elah* is translated 'teil tree' in Isa. vi. 13: "As a teil tree, and as an oak, whose substance is in them, when they cast their leaves." In Hosea iv. 13 it is rendered 'elm.' Elsewhere 'oak,' as Gen. xxxv. 4: "Jacob hid them under the *oak* which was by Shechem." So, "An angel of the Lord sat under the *oak* that was in Ophrah" (Judg. vi. 11). Absalom caught in an *oak* (2 Sam. xviii. 9). The *oak* near Bethel, under which the man of God that came out of Judah sat (1 Kings xiii. 14). The *oak* in Jabesh, under which Saul was buried (1 Chron. x. 12), and, Ezek. vi. 13, Every thick *oak*. In other places, as 1 Sam. xvii. 2, 19; xxi. 9, it is rendered erroneously '*elah*' or 'plain.' So 'the plain of Mamre,' for 'the oak of Mamre.' In almost all these passages the Septuagint rightly translates '*elah*' by *Terebinth tree*. [See also OAK.]

Sometimes the names may be indefinite and interchangeable, but in most passages this particular tree is specially intended. It is the *Pistacia terebinthus* of botanists, known by the Arabs as the *beet'm*, and well known in the Greek islands as the Turpentine tree. In Chios especially a considerable quantity of turpentine is extracted from it by tapping the trunk, but this is not practised in Palestine, where the inhabitants seem to be ignorant of its commercial value. It is a very common tree in the southern and eastern parts of the country, being generally found in situations too warm or dry for the Oak, whose place it there supplies, and which it much resembles in general appearance at a distance. It is seldom seen in clumps or groves, never in forests, but stands isolated and weird-like in some bare ravine or on a hill-side, where nothing else towers above the low brushwood. When it sheds its leaves at the beginning of winter, it still more recalls the familiar English Oak, with its short and gnarled trunk, spreading and irregular limbs, and small twigs. The leaves are pinnate, the leaflets larger than those of the Lentisk,

and their hue is a very dark reddish-green, not quite so sombre as the Locust tree. The flowers are in clusters like those of a vine, inconspicuous, and bear small red berries, scarcely larger than the Hawthorn.

Many terebinths remain to this day objects of veneration in their neighbourhood; and the favourite burying place of the Bedouin sheikh is under a solitary tree. Eastern travellers will recall the 'Mother of rags' on the outskirts of the desert—a Terebinth covered with the votive offerings of superstition or affection. The Terebinth of Mamre, or its lineal successor, remained from the days of Abraham till the fourth century of the Christian era, and on its site Constantine erected a Christian church, the ruins of which still remain. The tree on which Judas hanged himself is said to have been a Terebinth, and its descendant is yet shown to the credulous, overhanging the valley of Hinnom. Towards the north this tree becomes more scarce, but in the ancient Moab and Ammon, and in the region round Heshbon, it is the only one which relieves the monotony of the rolling downs and boundless sheepwalks; and in the few glens south of the Jabbok, we noticed many trees of a larger size than any others which remain west of Jordan.

THICK TREES. — The Hebrew *etz 'aboth*, thus translated, occurs in Lev. xxiii. 40; Neh. viii. 15; and in Ez. xx. 28; among the trees of the boughs of which the booths at the Feast of Tabernacles were to be formed, and under which idolatrous rites were performed. The derivation of the word supports the rendering of our version, but the Rabbinical writers maintain that this was the specific name of the Myrtle, and that it is the tree specially intended.

THYINE WOOD, Gr. Ξύλον θύϊνον, is mentioned in Rev. xviii. 12, among the precious commodities of the Apocalyptic Babylon: "The merchandise of gold . . . and purple, and silk, and scarlet, and all *thyine* wood." It is not referred to elsewhere in the Sacred Writings. The tree is not, so far as we know, a native of Syria, but is common on the Atlas mountains in North Africa—*Thuya articulata*, described by Des Fontaines, or by modern botanists, *Callitris quadrivalvis*. By the Romans it was called *Citrus*, and its wood *Citron wood*. It is a very small tree, of very slow growth, of the Cypress family, and very closely allied to the *Lignum vitæ* of our gardens.

It is frequently mentioned by Greek and Roman writers, and its wood brought fabulous prices for inlaid tables and other furniture in the luxurious days of the empire. It is still highly prized for similar purposes by the French in Algeria. The wood is dark brown in colour, very heavy, close-grained, and fragrant. Sometimes it is variegated by knots, and is then much more valuable. Its resin is called gum sandarach, and is used in the preparation of parchment.

THUYA ARTICULATA.

VINE. Heb. *gephen*, Gr. ἄμπελος (*Vitis vinifera*).—One of the most valuable and important fruits cultivated by man in every warm and temperate climate. It will not bear extreme heat, nor flourish where the summers are cold or damp, but its range is more extensive than that of the Olive and Fig, trees repeatedly coupled with it in the enumeration of the blessings of the Land of Promise. The Vine is a native of the hilly region on the southern shores of the Caspian Sea, and of Northern Persia and Armenia. Thence it early spread, and accompanied man in his migrations, especially to the westward, until now

it is cultivated throughout Western Asia, all Southern and Central Europe, Egypt, and Northern Africa, and has been introduced successfully into the temperate parts of North America, South Africa, and Australia.

The passages in which it is referred to both in the Old and New Testaments are too numerous to be recounted. It was one of the earliest plants cultivated, and the first mention of it is immediately after the Flood, when "Noah began to be an husbandman, and planted a vineyard" (Gen. ix. 20). This was probably in Armenia, the native country of the plant. Following civilization to Egypt, we find it alluded to in the chief butler's dream: "Behold, a vine was before me; And in the vine were three branches: and it was as though it budded, and her blossoms shot forth; and the clusters thereof brought forth ripe grapes" (Gen. xl. 9, 10). There are many representations of the Vine on the Egyptian monuments, corroborating the scriptural allusions to its cultivation there at this early period. In their journeyings, the Israelites cast wistful thoughts back on the vines of Egypt, lamenting that the wilderness was "no place of seed, or of figs, or of vines, or of pomegranates" (Numb. xx. 5); and the Psalmist, alluding to the plagues sent on Pharaoh and his people, recalls how "He destroyed their vines with hail" (Ps. lxxviii. 47). "He smote their vines also, and their fig trees" (Ps. cv. 33). Earlier still is the mention of the Vine in Canaan, when "Melchizedek king of Salem brought forth bread and wine" to Abram (Gen. xiv. 18). The earliest of the Assyrian monuments at Nineveh repeatedly depict the Vine.

But the Land of Promise was beyond all others renowned for its vines, for their number, productiveness, and the quality of their wine. It was "a good land, a land of . . . vines, and fig trees, and pomegranates" (Deut. viii. 7, 8). Pre-eminent was the blessing of Judah, "Binding his foal unto the vine, and his ass's colt unto the choice vine; he washed his garments in wine, and his clothes in the blood of grapes" (Gen. xlix. 11); and, though Judah no longer maintains this ancient pre-eminence, yet, where the Vine is cultivated in Southern Judæa, it still surpasses, both in the size of its grapes and the quality of its wine, the produce of other parts of the country.

There is scarcely any region in the world more admirably adapted for wine culture than Palestine, with the exception only of its maritime plains and the Jordan valley. It is the true climate of the Vine. The rocky hill-sides, with their light gravelly soil and sunny exposures, the heat of summer, and the rapid drainage of the winter rains, all combine to render it peculiarly a land of vines. The hill country presents in combination all the features characteristic of the choicest wine districts of the Rhine, of France, and Spain; and not only Judah, but all the land from Lebanon to Beersheba, was once clad on every hill with terraced vineyards, which have left behind them the traces of their existence in the winepresses and vats hewn in the rocks.

The vineyards were abundant even before the Israelites took possession of the land. When the spies were sent by Moses to view it, "They came unto the brook (*nachal, i.e.*, valley) of Eshcol (or grapes), and cut down from thence a branch with one cluster of grapes, and they bare it between two upon a staff" (Numb. xiii. 23). This Eshcol, or Grape valley, a little to the south of Hebron, is still clad with vines, and the grapes are the finest and largest in Palestine. Clusters weighing ten or twelve pounds have been gathered. The spies doubtless bore the cluster between them on a staff, that the splendid grapes might not be crushed. With care and judicious thinning, it is well known that bunches weighing nearly twenty pounds can be produced. Not only are the bunches remarkable for their weight, but the individual grape attains a size rarely reached elsewhere. In Eshcol, as elsewhere where vineyards remain, we see them marked by their watch-towers and walls fenced, where no other crop is so protected, rising one above another on their terraces, the earliest and latest symbol of Judah. 'A vineyard, or a hill of olives,' with the 'fence' and 'the stones gathered out,' and 'the tower in the midst of it,' is the natural figure which, both in the prophetical and evangelical records, represents the kingdom of Judah. The Vine was the emblem of the nation on the coins of the Maccabees and on some of Herod's, and in the colossal cluster of golden grapes which overhung the porch of the second temple, and "the grapes of Judah still mark the tombstones of the Hebrew races in the oldest of their European cemeteries at Prague."—*Stanley, S. and P.*, p. 164.

Other places are mentioned as celebrated for their vines. In the woe pronounced upon Moab by Isaiah and Jeremiah we read: "The fields of Heshbon languish, and the vine of Sibmah: the lords of the heathen have broken down the principal plants thereof, they are come even unto Jazer, they wandered through the wilderness: her branches are stretched out (Heb. *plucked up*), they are gone over the sea. Therefore I will bewail with the weeping of Jazer the vine of Sibmah: I will water thee with my tears, O Heshbon, and Elealeh: for the shouting for thy summer fruits and for thy harvest is fallen. . . . In the vineyards there shall be no singing, neither shall there be shouting: the treaders shall tread out no wine in their presses; I have made their vintage shouting to cease" (Isa. xvi. 8–10). Jeremiah repeats the woe almost in the same words: "O vine of Sibmah, I will weep for thee with the weeping of Jazer . . . &c. I have caused wine to fail from the winepresses: none shall tread with shouting" (ch. xlviii. 32, 33).

These were all towns in the heritage of Reuben, stretching from Heshbon in a line towards Rabbah. Jazer is marked by the ruins of Szir, twelve miles from Amman (Rabbah); Sibmah has not been re-discovered, while the extensive ruins of Heshbon and Elal (Elealeh), surmounting hills, are well known. From all of them the Vine and the summer fruits have utterly perished; no human habitation remains in the wide district; not a tree or a shrub varies the scenery except some terebinths near Szir; and it was with difficulty that we could trace here and there the undulating grass-grown ridges that mark the old vine terraces of this desolate region. The only vineyards now remaining east of Jordan are a few round Es Salt (Ramoth Gilead).

Not less desolate are the once famous vineyards of Engedi (Cant. i. 14), where the Vine is as extinct as the Palm. Engedi is so hot from its low situation by the shores of the Dead Sea, that the Vine could only be cultivated by continual labour and abundant watering. Did not the terraces still remain, we might doubt the reading in the Song of Solomon; but on the hill sides, to the north of the springs, they exist as perfect as when first formed, with a provision seen nowhere else: large rock-hewn cisterns, lined with cement, on each terrace; to which the water was conducted by cemented tubes.

and neat channels formed of lime running along the edge of the terraces, by which the water could be turned on to the root of each plant successively.

In enumerating the merchandise of Tyre, Ezekiel says: "Damascus was thy merchant . . . in the wine of Helbon" (ch. xxvii. 18). Unlike Sibmah and Engedi, Helbon retains its ancient fame. In a wild glen, a few miles from Damascus, the village and district bear the same name. The bottom and sides of the glen are covered with terraced vineyards, celebrated as producing the finest grapes in the country, and the remains of some large and beautiful structures are strewn around.—*Porter's Five Years in Damascus.*

The wine of Lebanon is also mentioned in Hos. xiv. 7, and is still in high repute.

In many particulars the culture of the Vine in Palestine differs from the method pursued in Western Europe. The tower or lodge in each vineyard has already been mentioned (Isa. v. 2), and the residence of some person in it during the ripening of the vines is necessary, owing to the distance at which the vineyards are from the towns and villages, and the utter absence of any isolated dwellings or homesteads in the unquiet and insecure lands of the East. The allotments of each village generally run in strips down the hill-side, and the tower is placed at the top.

Vineyards are, unlike any other crops, always carefully fenced, and this is the more necessary from the fondness of sheep and cattle for vine leaves: "He fenced it, and gathered out the stones thereof" (Isa. v. 2). "Why hast thou then broken down her hedges, so that all they which pass by the way do pluck her?' (Ps. lxxx. 12). "A householder planted a vineyard, and hedged it round about, and digged a winepress in it, and built a tower" (Matt. xxi. 33; Mark xii. 1). And in the Mosaic law there was an express injunction against a man causing a vineyard to be eaten, or putting his beast into another man's vineyard (Ex. xxii. 5). The pruned shoots of the vines are carefully gathered for forage, and, after the vintage, the cattle are turned in to browse.

The grapes have many enemies among the wild animals. The jackal especially (*shual*, rendered fox in our version), which, unlike the fox, is a fruit as well as

flesh eater, has to be guarded against as the crop ripens. This is several times alluded to. Thus, "The boar out of the wood doth waste it, and the wild beast of the field doth devour it" (Ps. lxxx. 13). "Take us the foxes, the little foxes, that spoil the vines: for our vines have tender grapes" (Cant. ii. 15).

The Vine is cultivated after different modes in different parts of Palestine. Where the vineyards are extensive, and on steep hill-sides, the plants are set a considerable distance apart, allowed to grow to the height of six or eight feet, and the bearing shoots are carried horizontally from this height, supported by poles until they meet the tendrils of the adjoining row. In the very stony soils, as under Mount Hermon, a different system is pursued. The loose stones are gathered in long parallel dykes or ridges, like dry walls, about four feet wide, and the vines planted near one side of the heap. The plants are cut low, and the shoots trained up the walls and over the heap to the other side, drawn across, and brought down by stones attached to them. By this means the fruit is kept from the ground, and greater heat is obtained from the sun's radiation on the stones. In the Lebanon, on the contrary, where the ground is very steep, the vines are allowed to trail, the bunches being kept up by little sticks. In some places, as in the neighbourhood of Sebustiyeh (Samaria), the vines near the roads are trained on sticks to some height above the road, almost overshadowing it. To such a fruitful and spreading vineyard, Job referred when he says of the final destruction of the wicked, "He beholdeth not the way of the vineyards" (Job xxiv. 18).

But the vines that are planted in gardens and about houses are treated very differently. They are trained often by lattice work over dead walls, and sometimes on trellises, so that a single vine forms a complete bower of the inner courtyard of a house, or covers the whole extent of the buildings. Such a vine the Psalmist had in view when he describes the transplanting of his people from Egypt: "Thou preparedst room before it, and didst cause it to take deep root, and it filled the land. The hills were covered with the shadow of it, and the boughs thereof were like the goodly cedars. She sent out her boughs unto the sea, and her branches unto the river" (Ps. lxxx. 9–11). Such a vine recalls the blessing,

"Thy wife shall be as a fruitful vine by the sides of thine house" (Ps. cxxviii. 3).

No tree requires such constant and severe pruning as the Vine. We know that in the vineyards of France the whole wood is cut back to the stump every year, and in like manner in the East only three or four leaders are left from the top of the main stem, which is about five or six feet high; so soon as the vintage is over. This is alluded to by our Lord: "Every branch that beareth fruit, he purgeth (*i.e.*, pruneth) it, that it may bring forth more fruit" (John xv. 2).

The vintage, still a season of rejoicing to the husbandman, as being the latest crop gathered in in autumn, must have been still more joyous when the culture of the Vine was predominant. It commences in the warmer valleys at the beginning of September, but continues till the end of October in the colder situations, while the sowing of the corn begins in November. Thus Amos, in foretelling the time of future plenty, proclaims: "Behold the days come, saith the Lord, that the plowman shall overtake the reaper, and the treader of grapes him that soweth seed" (ch. ix. 13), so long should the vintage continue. The desolation of the land of Moab, on the contrary, is depicted by silence at this joyous season: "In the vineyards there shall be no singing, neither shall there be shouting: the treaders shall tread out no wine in their presses; I have made their vintage shouting to cease" (Isa. xvi. 10).

The grapes were not carried home, but the wine was expressed on the spot, every vineyard possessing its own winepress. It consisted of two vats, hewn one below the other out of the solid rock, on the slope of the hill. At the upper end a trough was cut, about three feet deep and four and a half by three and a half feet in length and breadth. The second trough was smaller, about four feet by three feet, and from twelve to eighteen inches in depth. The two were connected by two or three small holes bored through the rock, close to the bottom of the upper trough, so that, on the grapes being put in and pressed down, the juice streamed into the lower vat. Some of them are much longer and more shallow. In such a one Gideon threshed his wheat in some obscure corner of the vineyard, where he could cover it over with boughs or leaves, and conceal it from the Midianites

(Judg. vi. 11). The winepress is frequently mentioned in connection with the vineyard, as necessarily accompanying it (Isa. v. 2; Matt. xv. 33).

The upper vat, or press, and the lower one for the juice, have different names in Hebrew, and are mentioned together in Joel iii. 13: "The press (*gath*) is full, the fats (*i.e.*, vats, *yekebim*) overflow,"—the upper vat being full of fruit, the lower one overflowing with the must. The word '*gath*' is often employed in the names of places, as Gath-rimmon, Gath-hopher, the winepress of Zeeb (Judg. vii. 25), the king's winepresses (Zech. xiv. 10).

The ancient winepresses are among the most interesting remains of the Holy Land, perhaps the only relics still existing of the actual handiwork of Israel prior to the first captivity. They attest the culture of the Vine in every part of the country, even where man has long ceased to dwell, except as a nomad. The hills of Southern Judæa abound with them, and in the little explored region between Hebron and Beersheba we found them on all the ranges. Among the brushwood and thickets of Mount Carmel they are very numerous; I have visited as many as eleven on the east of Carmel alone, and four very near the town of Caiffa. They are seldom noticed by travellers, owing to their inconspicuous form, and are often half choked with earth and trees; but the careful explorer is sure to stumble on them on every hill. There are many in Galilee, especially in the neighbourhood of Kedes.

The wine was expressed, as it still is, by the simple inartificial process of treading. The juice, however, which oozed by the simple weight of the bunches into the lower vat, was collected first, and supplied the richest and best wine, 'the sweet wine' (Acts ii. 13), as the 'drop port' is reserved still in the vintage of Portugal, and highly esteemed. The treading was effected by several men, according to the size of the vat, who encouraged each other after the invariable Oriental fashion by shouting: "He shall give a shout, as they that tread the grapes" (Jer. xxv. 30); "None shall tread with shouting, their shouting shall be no shouting" (ch. xlviii. 33). [See also Isa. xvi. 9, 10.] The treaders had their feet and legs bare, but as they leaped upon the grapes their clothes were dyed with the juice (Gen. xlix.

11); and it was hard labour, never undertaken by one alone. This is illustrated by the magnificent description in Isa. lxiii. 2, 3: "Wherefore art thou red in thine apparel, and thy garments like him that treadeth in the winefat? I have trodden the winepress alone; and of the people there was none with me: for I will tread them in mine anger, and trample them in my fury; and their blood shall be sprinkled upon my garments, and I will stain all my raiment."

So soon as the grape harvest had been carried to the vats, the owners were forbidden to glean the vineyard again: "Thou shalt not glean thy vineyard, neither shalt thou gather every grape of thy vineyard; thou shalt leave them for the poor and stranger: I am the Lord your God" (Lev. xix. 10).

The grapes were of various kinds, red and white, but the red seems to have been preferred for wine. At present it is the most commonly cultivated, but the choicest wines of Bethlehem, Jerusalem, and the Lebanon are white. The latter much resembles Sauterne in quality and flavour, as well as colour. The cultivation has diminished not only from the desolation of the land, but from wine being prohibited to the Mussulmans. Those vineyards which are in their possession are only used for fresh fruit, for raisins, and for syrup or *dibs*. Raisins were dried in ancient times. Thus we read of the hundred clusters of raisins among the other good things which Abigail took wherewith to propitiate David (1 Sam. xxv. 18), of the two clusters that David's men gave the perishing Egyptian (1 Sam. xxx. 12), of the bunches of raisins brought from all parts at the coronation of David (1 Chron. xii. 40), and of the present of raisins brought to him by Ziba (2 Sam. xvi. 1). The choicest grapes are selected for drying, which is rapidly accomplished by laying them in the sun, when they are at once stored.

The *dibs*, or syrup, is obtained by boiling down the juice of the ripe grapes to a third of its bulk, when it becomes as thick as treacle, but is of a lighter colour. The Moslems are very fond of *dibs*, which they eat with bread, drink with water, and use largely in confectionery. The Hebrew name *debash* (honey) is identical, and it is this syrup, and not bees' honey, which is understood to be meant by the honey which Jacob sent down as a

present to the governor of Egypt (Gen. xliii. 11), and in which the men of Tyre traded from the land of Israel (Ez. xxvii. 17).

Various sorts both of vines and wines are mentioned in Scripture. The 'choice vine' (Gen. xlix. 11; Isa. v. 2; Jer. ii. 21), *sôrek*, is supposed by some to be the vine with soft stones, from which the Sultana raisins are produced, the *serki* of the Moors, and by others to be merely the common species trained and cultivated to a high degree of excellence.

We find no less than eight Hebrew and four Greek words used to denominate wine in Scripture. The ordinary word is Heb. *yayin*, Gr. *oînos*, *i.e.*, 'wine' simply. Other words are used for wine of superior excellence: for sweet wine, as Acts ii. 13; for newly-fomented wine (Heb. *'âsis*); for sparkling wine; for mixed wine; for spiced wine; and for sour wine, or vinegar. The mixed wine of Scripture is not wine mixed with water to dilute it, but with spices and other heating ingredients to increase its power. Thus, in Prov. xxiii. 30, "They that tarry long at the wine; they that go to seek *mixed wine*." So, Ps. lxxv. 8, "In the hand of the Lord there is a cup, and the wine is red; it is *full of mixture*."

The thin sour wine used by the poorer classes is often translated vinegar: "Eat of the bread, and dip thy morsel in the vinegar. And she sat beside the reapers" (Ruth ii. 14). Such was, probably, the vinegar offered to our Lord on the cross; the common wine which was part of the daily allowance of a Roman soldier, as mentioned by all the Evangelists: "One of them ran, and took a spunge and filled it with vinegar, and put it on a reed, and gave him to drink" (Matt. xxvii. 48), the vinegar being given not in mockery, but to allay thirst, or as an anodyne. The Nazarites were forbidden to drink, not only good wine, but even common vinegar (Numb. vi. 3). There was, however, a stronger vinegar, alluded to in Prov. x. 26, and elsewhere.

Wine on the lees (Isa. xxv. 6) means wine that had been kept on the lees or dregs without straining, for the purpose of increasing its body. All the terms for wine are used in collocations which clearly show that fermentation is implied; nor is there the slightest ground in criticism for the pretence that the unfermented juice of the grape was ordinarily used. The fresh juice could not be

preserved without fermenting unless boiled at once as must, when it becomes *dibs* or honey; and the different words are all used in one passage or another where an intoxicating liquor is necessarily implied by the context. When our Lord speaks of men not putting "New wine into old bottles: else the bottles break, and the wine runneth out, and the bottles perish: but they put new wine into new bottles, and both are preserved" (Matt. ix. 17), He is plainly alluding to the distension of the leathern bottle by the new wine in process of fermentation, which an old skin would not be able to bear without bursting.

In Gen. xl. 11, we find the fresh juice of grapes, extracted by maceration, and of a sweet taste, alluded to, the liquor being squeezed fresh into the cup. The same sweet drink is probably intended in Numb. vi. 2, where the Nazarite is forbidden "to drink any liquor of grapes, nor eat moist grapes, or dried," as well as interdicted from wine, strong drink, or vinegar, whether made of wine or strong drink.

The word rendered 'flagon of wine' in 2 Sam. vi. 19, 1 Chron. xvi. 3, Cant. ii. 5, Hos. iii. 1, really signifies not wine, but a cake of raisins.

Strong drink (Heb. *shekar*) seems to include all fermented liquors not made from the fresh juice of the grape. Of these pomegranate wine has been already mentioned, as referred to in Cant. viii. 2: "Spiced wine of the juice of my pomegranate." Fermented liquors are also made in the East from various other fruits, and have been so from the earliest times, especially from the date palm, from the mulberry, the fig, and the dried raisin. Beer, made from barley, was familiar to the ancient Egyptians, and probably to the Jews likewise.

The Vine, its value, fruitfulness, beauty, and uses, have supplied the sacred writers with many illustrations. Israel brought out of Egypt by the hand of the Lord, and settled in the Land of Promise, is set forth under the figure of a vine brought, room prepared for it, the vineyard fenced and provided with tower and winepress (Ps. lxxx. 8–11; Isa. v. 1–7, xxvii. 2; Jer. ii. 21). Our Lord compares the Church of God, its blessings and responsibilities, to a vineyard carefully provided and let out to husbandmen (Matt. xii. 33, &c.). To dwell every man under his own vine and fig tree, is the ex-

pression of peace and plenty: "Judah and Israel dwelt safely every man under his vine, and under his fig tree" (1 Kings iv. 25). [See also Mic. iv. 4; Zech. iii. 10.] The departure of Israel from God and their ingratitude is illustrated by the comparison with 'wild grapes' (Isa. v. 4); 'the degenerate plant of a strange vine' (Jer. ii. 21); 'an empty vine' (Hos. x. 1); 'grapes of gall' (Deut. xxxii. 32). Finally, our Lord has selected the Vine as the type of Himself in His intimate union with His disciples, who bore fruit through their union with Him: "I am the true vine, and my Father is the husbandman. I am the vine, ye are the branches," &c. (John xv. 1–8).

VINE, WILD.—Mentioned in Isa. v. 2: "He looked that it should bring forth grapes, and it brought forth wild grapes." The Wild Vine, or Fox Grape, bears a very small black grape, extremely acid and astringent, and only used for verjuice or vinegar. It grows commonly, it is said, in the highways and hedges of Palestine. We found many vine plants semi-wild in different parts of the country, but did not meet with them at the time they ripened their fruit. I am, therefore, unable to describe it from observation. Some commentators understand by *bôser*, the 'sour grape' of Isa. xviii. 5, and Jer. xxxi. 29, 30, translated also 'unripe grape' in Job xv. 33, the fruit of the wild as opposed to the cultivated vine. It may, however, merely signify the sour, unripe grape of any kind, or it may signify merely weeds. [See COCKLE.]

WALNUT.—In Cant. vi. 11, we read, "I went down into the garden of nuts to see the fruits of the valley," where 'nuts' is the rendering of the Hebrew *egoz*, equivalent to the Arabic *Ghaus*, *i.e.*, the Walnut tree (*Juglans regia*). The Walnut tree is a native of Persia, and was early spread through Western Asia and Europe.

Its grateful shade, handsome, wide-spreading growth, and the fragrance of its leaves, would render it a favourite tree in the gardens of Solomon. It is cultivated extensively in the colder parts of Palestine, and on the higher grounds in the north supplies the place of the Olive, being valued not only for its fruit, but chiefly for the oil extracted from the green nuts. In Syria it comes into leaf early in March, but the fruit is not ripe till August. It has recently been replanted on the site o

the gardens of Solomon near Bethlehem, but it is only farther north that the Walnut tree is common. Josephus mentions its luxuriance in former times on the Plain of Gennesaret. It is not now to be seen there, though in some villages near, as at Hattin, there are still fine Walnut trees. It is very common in the Plain of Damascus, and few of the Lebanon villages especially high up the mountains are without their grove of Walnuts. Travellers will remember the Walnut trees of Ainât, and also of Akûrah, near the ancient Adonis. There are also many Walnut trees apparently wild in Southern Gilead. On the streams of Ammân (Rabbah) and the Upper Jabbok the tree is frequently met with, and there are clusters of them at each of the very few surviving villages of that region. Between Souf and Gerash the fine Walnut trees, mentioned by Burckhardt, by a fountain and some ruins, still remain, as do also some noble trees in Ajlun. [See NUTS.]

WILLOW.—Two words are rendered 'Willow' in our version. (1.) '*'Arâbim*': "Ye shall take you . . . boughs of thick trees, and willows of the brook (*i.e.*, of the wady or ravine): and ye shall rejoice before the Lord your God seven days" (Lev. xxiii. 40). Job, describing the habits of Behemoth (the hippopotamus), says: "The shady trees cover him with their shadow; the willows of the brook compass him about" (ch. xl. 22). So Isaiah in the dirge of Moab: "That which they have laid up, shall they carry away to the brook (valley) of the willows" (ch. xv. 7), where some particular wady is probably intended. Again, in comforting His church with His gracious promises, God speaks thus by the mouth of the same prophet: "I will pour . . . my blessing upon thine offspring: and they shall spring up as among the grass, as willows by the water courses" (ch. xliv. 3, 4). In the lamentation of Israel in captivity, the exiles exclaim: "By the rivers of Babylon, there we sat down, yea, we wept when we remembered Zion. We hanged our harps upon the willows in the midst thereof" (Ps. cxxxvii. 1, 2).

Another word, '*Tzaphtzaphah*,' for Willow, occurs in Ez. xvii. 5: "He took also of the seed of the land, and planted it in a fruitful field; he placed it by great waters, and set it as a willow tree." This word is no doubt identical with the Arabic *Safsaf*, one of the vernacular names for the Willow.

From all these passages we see that the '*'Arâbim*' and the '*Tzaphtzaphah*' were trees which invariably flourished by water-courses, when named the locality of their growth being usually associated with them, and they have always been translated 'Willow.' '*'Arâbim*' is closely allied to the Arabic *Gharab*, another name for the Willow.

The Willow (*Salix* of botanists) is represented in Palestine by several species, and there are few parts of the country where one willow or another may not be found. It is, however, a local tree. All naturalists are well aware of the difficulties of determining the species of Willow, owing to the specific character being shown at different seasons of the year—the catkins, leaves, and fruit, all succeeding each other. We, consequently, were unable to decide several of the species which we collected, as we could not visit the localities a second time. The Weeping Willow (*Salix babylonica*) is frequently found on the coast overhanging wells and pools. There is a conspicuous tree of this species over a pond in the Plain of Acre, and others on the Phœnician plain. It is also common on the banks of the Barada (Abana), near Damascus.

It is probably to this species the Psalmist refers in the passage which so touchingly depicts Israel's sorrow in captivity. Another species (*Salix octandra*) is common on the banks of the Jordan. We also found what appeared to resemble the Common Osier (*Salix viminalis*). Other travellers have mentioned *Salix ægyptiaca* as also found. In some of the wadys by the Dead Sea, as in the Wady Areyeh and Wady Safsaf, where the stream is perennial, we found a very fine species of Willow flourishing abundantly. It is apparently allied to the Osier, and has very narrow leaves, six inches in length, whitish on the under side, and the bark a bright reddish green. These wadys were the only places in Palestine where we found the Willow the predominant tree, and where it continuously lined the banks of any stream. The Arabs called it *Safsaf*, their generic name. Burckhardt also mentions an Ain Safsaf, 'Fountain of the Willow.'

We know that the Orientals rarely discriminate species accurately, excepting in the case of plants cultivated or valuable to man, nor would an unobservant people ever

distinguish the different sorts of Willow. The Willow is by no means a conspicuous or characteristic plant in Palestine: though not rare, it is scattered, local, and unattractive.

But there is another plant which lines every wady from Dan to Beersheba, and which, beyond every other shrub in the country, must rivet the attention of the

OLEANDER.

most unobservant traveller—unequalled for the gorgeous beauty of its flowers, which shed a glowing sheet of pink over the fringe of every lake and water-course for several weeks in the early summer. This plant, the Oleander (*Nerium oleander*), undoubtedly indigenous, is not specially mentioned in Scripture. Yet it fringes the whole Upper Jordan, dipping its wavy crown of red into the spray in the rapids under Hermon, and is nurtured by the oozy marshes in the Lower Jordan, nearly as far

as Jericho. The immediate basin of the Dead Sea appears too hot for it; everywhere else it demands but moisture, and springs up by the water-courses. On the Arnon, on the Jabbok and the Yarmuk, it forms a continuous fringe. In many of the streams of Moab it forms a complete screen, which the sun's rays can never penetrate to evaporate the precious moisture. The wild boar lies safely ensconced under its impervious cover.

It is the same throughout all Gilead, where it sometimes attains the proportions of a forest tree, and where we have frequently encamped and rested under its shade. By one sinuous unbroken line of deep green and burning red, it marks the hidden course of the Yabes (Jabesh) and many another trans-Jordanic stream. On the west side, though less luxuriant, it is equally abundant. The traveller from Jerusalem to Jericho looks down into the terrific gorge of the Wady Kelt, and scans the dark-green fringe at the bottom. If he visited it in June instead of March he would recognise the bloom of the Oleander. It flourishes also on the Kishon, and in the Plains of Phœnicia and Sharon, in the gardens of Sidon, and in the valleys of Lebanon. By the other rivers of Syria, the Leontes and the Orontes, by the rivers of Damascus, on the moist flats which surround the waters of Merom,

> " Or where Gennesaret's wave
> Delights the flowers to lave
> That o'er her western slopes breathe airs of balm—
> All through the summer's night
> Those blossoms red and bright
> Spread their soft breasts, unheeding, to the breeze.
> *Christian Year*

Dean Stanley has remarked how the difference of elevation may be noted by the time of the Oleander's flowering. It is almost over at Gennesaret before it is budding in the Upper Leontes and Lebanon.

The same author elsewhere observes that the Oleander is only to be found in the Valley of the Jordan (a mistake, as is shown by his own frequent allusions to it elsewhere), and that it may be the tree alluded to as 'planted by the rivers of water, which shall bring forth his fruit in due season,' 'whose leaf shall not wither,' and the 'rose plant in Jericho,' 'the rose growing by the brook of the field,' celebrated by the son of Sirach.

When we note its similarity in growth, situation, form, and leaf, to the Osier, I feel strongly convinced that it is rather with the Oleander than with any species of our Osier that we must identify the 'willow by the water-courses' of Holy Writ.

It is to be observed that the plant was associated both with the joyous and the sorrowful days of the children of Israel. When captives in Babylon, their grief was poured forth under the willows; and in contemplating God's purposes of mercy towards them, they are directed to the willows as emblems of their growth, and as recalling the willows of the brook under which they rejoiced in their feast days of old. The Oleander is now the exclusive material with which the summer booths in Galilee are constructed.

CHAPTER XIII.

Part II.—Herbs and Flowers.

Anise. Gr. Ἄνηθον.—Mentioned only in Matt. xxiii. 23: "Woe unto you, Scribes and Pharisees, hypocrites! for

ANISE.

ye pay tithe of mint and anise and cummin, and have omitted the weightier matters of the law, judgment, mercy, and faith." St. Luke, in the parallel passage, inserts 'rue,' and omits 'anise and cummin,' but adds, 'and all manner of herbs' (ch. xi. 42). *Anethum graveolens*, or Dill, is an umbelliferous, inconspicuous plant, somewhat like the Caraway in appearance, and much

cultivated in the East for the sake of its seeds, which are used both in medicine and in cooking, as a carminative and for seasoning dishes. Dill has long been thus employed.

Ancient writers mention it as cultivated in Egypt; it grows in the Greek islands, and occurs at the present day in Palestine, both in gardens and wild, or at least uncultivated, in fields. The Talmud mentions that "The seeds, the leaves, and the stem of dill are, according to Rabbi Eliezer, subject to tithe." The Hebrew expression in the Talmud is identical with its modern Arabic name. Dill is derived from an old Norse word, to dill, *i.e.*, to soothe. Hence the dilling or soothing herb. Some writers have supposed the *Pimpinella anisum*, now called Anise, to be the *ἄνηθον* of the New Testament. It is a plant of the same order as the Dill (umbelliferous), very like it in appearance, and its seed employed for the same purposes, but it is not so common a garden herb in Eastern countries.

Barley. Heb. *seôrah;* Gr. *κριθή*; Lat. *hordeum*.—The most universally cultivated cereal in the world, having a more northerly range than Wheat, as well as a more southerly. It is less impatient of drought, and will thrive in a much lighter soil. It arrives earlier at maturity, requiring less heat to ripen it, yet uninjured by a tropical sun. It will also yield much longer on the same land without any rotation of crops. There is consequently no part of Palestine where it is not the most ordinary grain.

It is usually sown about the same time as the Wheat; but there is an interval of about three weeks between the conclusion of Barley harvest, and the beginning of Wheat harvest. The seed-time depends upon the 'former' or winter rains. If those fall early, the ground is at once scratched and the grain cast in, sometimes as early as the first week in November. Very often the rains do not fall copiously enough to soften the soil until the beginning of December, and then the Barley is not sown till Christmas or even later. The lighter and drier soils are chosen for Barley, but in the low grounds they are frequently irrigated where the means exist for so doing. Very little labour is expended on the cultivation: after the wooden plough has broken it up, the seed is cast over it, and covered in by a rude brush-harrow.

In the Jordan valley the Barley harvest is over by the end of March, and I have eaten a barley-cake in that month at Jericho, made from a crop which I had seen sown in December. In Central Palestine the Barley harvest commences in April, and in the north, on Hermon and Lebanon, it is not over till the end of May. In the Plain of Shittim I saw in April some Arabs dibbling in maize on land which had just been cleared of barley. The yield of barley is very light, owing to the slovenly agriculture. Excepting on the rich moist plains, it does not appear to exceed twenty bushels per acre. Only one variety of Barley came under our notice. It was like the 'two-rowed,' summer Barley of England (*Hordeum distichum*) and of a very fine silvery hue.

However early or late the Barley harvest may be, there is always an interval between it and the Wheat harvest, generally not less than three weeks, more frequently a month; but less near Jericho. The time of Barley and Wheat harvests are frequently alluded to as dates to fix the time of year in Scripture—the barley being generally got in at the time of the Passover. Barley harvest is mentioned as the time of the arrival of Naomi with Ruth at Bethlehem: "They came to Bethlehem in the beginning of barley harvest" (Ruth i. 22; ii. 23); and of the hanging of the sons of Saul by the Gibeonites (2 Sam. xxi. 9). In consequence of the earlier ripening of the Barley, it was destroyed in Egypt by the plague of hail, when the Wheat escaped: "The flax and the barley was smitten: for the barley was in the ear, and the flax was bolled. But the wheat and the rie were not smitten: for they were not grown up" (Ex. ix. 31, 32).

Barley is the universal food in Palestine of horses and asses, and sometimes also of draught oxen. The straw is chopped for hay, and the corn winnowed and given separately. Oats are unknown, being a grain confined to much colder climates. But Barley is also largely consumed as an article of human food. At least half the bread eaten by the poor is of Barley [see 2 Chron. ii. 10, where equal portions of Wheat and Barley are allotted to the artificers at the Temple]. Frequently we were unable for many days together to obtain any other bread when in remote parts of the

country. But it is considered a proof of poverty and hardship to be compelled to live on Barley bread, which, as all those who have eaten it for any time know, is much inferior in nutritive qualities to wheaten. This fact may throw light on several passages where Barley and Barley bread is mentioned in Scripture.

Thus, in Numb. v. 15, it is ordained that the jealousy-offering, when a man suspected his wife, was to be a tenth part of an ephah of *barley* meal, instead of, as in all other cases, *wheaten* meal; showing, probably, the contempt and low esteem in which the suspected parties, if guilty, were to be held. The same meaning is implied in the vile price paid by the prophet as the purchase-money of an adulteress: "I bought her to me for fifteen pieces of silver, and for an homer of barley, and an half homer of barley" (Hos. iii. 2). Thus, too, the bread of defilement eaten by Ezekiel to typify the misery of the siege of Jerusalem was to be eaten as barley-cakes (Ez. iv. 9–12). How forcible, too, is the expression in the same prophet: "Will ye pollute me among my people for handfuls of barley?" (ch. xiii. 19.)

In this fact of the low esteem in which Barley bread is held, we reach a more vivid understanding of the dream of the Midianite in Judg. vii. 13, 14. Gideon's family was poor in Manasseh, and he the least in his father's house. The Midianite invader, like any proud Bedouin to-day, would call the despised Israelitish *fellah* who tilled the soil 'a barley-cake;' and thus when he dreamed that "a cake of barley bread tumbled into the host of Midian, and came unto a tent, and smote it that it fell, and overturned it, that the tent lay along," at once "his fellow answered and said, This is nothing else save the sword of Gideon the son of Joash, a man of Israel: for into his hand hath God delivered Midian, and all the host."

Bdellium is mentioned in Gen. ii. 12 and Numb. xi. 7. It is believed by some few commentators to be the odoriferous gum of a tree growing in Arabia Felix, and described by Pliny. Others hold it to be a precious stone.

Beans. Heb. *pol.*—Beans are mentioned in 2 Sam. xvii. 28 among the provision brought to David when he fled from Absalom, and also among the various ingredients of which the prophet Ezekiel was commanded to

make bread along with "wheat, and barley, and beans, and lentiles, and millet, and fitches" (Ez. iv. 9).

The Common Bean (*Vicia faba*) is much cultivated in Palestine, as are various other kinds of leguminous vegetables—peas, kidneybeans, lentiles, vetches, &c. They are a common article of food among the poor, Bean meal being sometimes mixed with flour for coarse bread, but more generally they are stewed whole with oil, and formed into a mess with other vegetables. They are sown in November or December, and ripen at the time of Wheat harvest. On the 23rd of February, 1864, the beans were in full blossom in the open fields round Jacob's Well and the tomb of Joseph at Nablous, which were all laid down to this crop. Near Jaffa they were even earlier.

Bramble. Brier. Pricks. Thistle. Thorns. Thornhedge.—There are at least eighteen Hebrew words used to express different kinds of prickly shrubs or weeds which occur in the Hebrew Scriptures. We have very little to assist us in endeavouring to identify any one of these terms, which are indifferently rendered in different parts of our version by 'bramble,' 'brier,' 'thorn,' 'thistle,' without any attempt at classification or system, and in many of which the derivation does not afford a clue to the plant intended.

To those who have noticed the plants of Palestine, how truly it is in its shrubs and weeds alike a land of thorns and briers, it can be no matter of surprise that our Hebrew vocabulary, scanty as it is on most subjects of natural history, should here be so rich. The combined heat and dryness of the climate seem to develope a tendency to form thorns, even in groups like the *Astragalus*, where we should least expect them. All plants become more spiny in rocky and parched situations, the expansive effort which, under moister conditions, would develope a bough with leaf or blossom being arrested, and forming merely a barren thorn or spine. From the day of man's first transgression the curse upon the ground has been, "Thorns and thistles shall it bring forth unto thee" (Gen. iii. 18); and often was the warning given to the chosen people, "upon the land of my people shall come up thorns and briers." "The thorn and the thistle shall come up on their altars" (Hos. x. 8).

We may examine a few of the Hebrew terms in connection with the most remarkable thorn-bearing plants of the country. (1.) *Atâd*, translated 'bramble' in the parable of Jotham: "Then said all the trees unto the bramble (*atâd*), Come thou and reign over us" (Judg. ix. 14). In Ps. lviii. 9 the same word occurs: "Before your pots can feel the thorns (*atâd*) he shall take them away as with a whirlwind." The Septuagint and the Vulgate have rendered it by *Rhamnus*, a well known thorny shrub, which suits the context of Jotham's parable. The Rhamnus, or *Lycium europæum*, is very common in all parts of Palestine, and serves the uses of our Hawthorn, which it somewhat resembles. Its range is extensive: we noticed it in Lebanon, and gathered it as far down as the neighbourhood of Engedi. It is often employed in hedges, and has stiff sharp spines, erect and numerous branches, with very small oblong thick leaves close set, and less than half the size of those of the Box tree. From its slight resemblance to the Box it derives its English name of box-thorn. It belongs to the family *Solanaceæ;* has a small pink blossom and a dark berry, each growing singly.

(2.) *Choach*, rendered 'brambles' in Isa. xxxiv. 13; 'thickets' in 1 Sam. xiii. 6; 'thistle' in 2 Kings xiv. 9: "The thistle (*choach*) that was in Lebanon sent to the cedar that was in Lebanon, saying, Give thy daughter to my son to wife: and there passed by a wild beast that was in Lebanon, and trode down the thistle"; and 2 Chron. xxv. 18. So, "Let thistles (*choach*) grow instead of wheat" (Job xxxi. 40). In 2 Chron. xxxiii. 11, Prov. xxvi. 9, Cant. ii. 2 ("as the lily among thorns"), and Hos. ix. 6, it is rendered 'thorns.' Amidst all this variety of translation the only clue to a more exact meaning is the passage in Job, from which it appears that a thorny plant of quick growth was intended.

There are two classes of thorny weeds which choke the corn fields of Palestine—the Thistles, and Centaureas or Knapweeds. As the Centaurea appears to be designated by the next word, *Choach* may well stand for the Common Thistle. Of this weed there are very many species, especially in the corn plains of Esdraelon and Sharon, many of which are undetermined. The most common are *Notobasis syriaca*, a tall pink flowering Thistle with powerful spines: *Scolymus maculatus*, a very noxious

weed, with a bright orange flower, somewhat recalling the Carline Thistle of English pastures; and *Carthemus oxycantha*, another yellow flowering Thistle, whose formidable spines inflict irritating wounds, like the sting of a poisonous insect.

(3.) *Dardar*, translated τρίβολος, *tribulus*, in the Septuagint, occurs in Gen. iii. 18: "Thorns also and

CENTAUREA CALCITRAPA.

thistles (*dardar*) shall it bring forth to thee"; and again, in Hos. x. 8: "The high places also of Aven, the sin of Israel, shall be destroyed: the thorn and the thistle shall come up on their altars."

Τρίβολος also occurs in the New Testament: "Do men gather . . . . figs of *thistles?*" (Matt. vii. 16) and Heb. vi. 8, where it is translated 'briers': "That which beareth thorns and briers is rejected." The *tri-*

bulus is frequently mentioned in classical authors in conjunction with the *Carduus* (Thistle), and is generally admitted to be a species of Knapweed, the Star Thistle, called by botanists *Centaurea calcitrapa*, a most troublesome intruder in corn fields through all the countries of Southern Europe and Western Asia.

CENTAUREA VERUTUM.

Both this species and another closely allied to it, *Centaurea verutum*, but with much more formidable spines, an inch and a half in length, often overrun the fields and waste places of Galilee, to such an extent that we have found ourselves baffled in the attempt to get through them on foot, and our horses refused to face the thicket,

which had to be beaten down by sticks. The thorns of the Star Thistles are not on the leaf or stem, but are simply the scales of the involucrum or flower-sheath, lengthened into long, hard spines. We are enabled to identify the *tribulus* by the ancient military engine named from it, a ball with iron spikes projecting in all directions, thrown down to arrest cavalry. Many specimens are in museums, and it still has a place in modern military defence under the name of 'calthrop,' taken from this same Thistle.

(4.) *Chedek* occurs in Prov. xv. 19: "The way of the slothful man is as an hedge of thorns (*chedek*), but the way of the righteous is made plain"; and in Mic. vii. 4: "The best of them is as a brier (*chedek*): the most upright is sharper than a thorn hedge." Evidently this is not a ground thistle, but some thorny plant suitable for hedges, and we have a clue to it in the Arabic corresponding term '*chadak*,' the name applied to prickly plants of the *Solanum* family, of which there are several species very common in Palestine.

One in particular, *Solanum sanctum*, or *S. sodomœum*, familiarly, but incorrectly, designated as the 'Apple of Sodom,' is, probably, the '*chedek*' of Scripture. It grows most abundantly in all the warmer parts of the country, especially in the Jordan valley, in hedges, thickets, and wastes, near towns and gardens. It is a shrubby plant, from three to five feet high, with very branching stems, thickly clad with spines like those of the English brier, with leaves very large and woolly on the under side, and thorny on the midriff. The blossom resembles that of the Potatoe in shape and colour, and it bears a large crop of fruit, larger than the Potatoe-apple, perfectly round, yellow at first, and when quite ripe changing to a brilliant red. Inside there are a quantity of black seeds like those of the Potatoe.

(5.) *Kôtz* occurs very frequently throughout the Scriptures. It is generally translated 'thorns,' as in Gen. iii. 18: "Thorns (*kótz*) also and thistles shall it bring forth to thee." In the Septuagint it is rendered by ἄκανθα, the word which is always translated 'thorns' in the New Testament, as in Matt. vii. 16: "Do men gather grapes of thorns?" The same word occurs in the Parable of the Sower, and in Heb. vi. 8, and to describe the crown of thorns placed in derision on the

head of the Redeemer. From these various passages it seems clear that *kôtz* and *ἄκανθα* are general terms for any prickly or thorny plant, sometimes used for a bush, at other times for a corn-weed.

(6.) *Shamîr* occurs frequently in Isaiah, where it is translated 'briers,' as in vii. 23–25. It is generally coupled with '*shait*,' 'thorns,' probably an indefinite term, but at least one which no clue or derivation enables us to define to any particular species. *Shamîr*, however, appears to be the equivalent of the Arabic *Samur*, a thorny tree common in Arabia, a species of *Sidra*, which does not produce fruit.

The Arabs of the Jordan valley at the present day apply the name *Sidra* to all thorny non-fruit-bearing trees which attain some size, and which are very numerous there, of the natural order *Rhamnaceæ*. But they confine the name *Samur* to the *Paliurus aculeatus*, or Christ's Thorn. Elsewhere this name was given to the *Rhamnus palæstina*, or Buckthorn, which is more common in the higher ground. The Hebrew *Shamîr* may reasonably be assigned to either or both these species. *Rhamnus olcoïdes* is a stiff, straight shrub, very like our Blackthorn in appearance, with very small leaves, yellow blossom, and spines like those of the Hawthorn. It is found in most of the Mediterranean countries. *Paliurus aculeatus* has much larger leaves, small white or yellow blossoms, and a number of thorns on the twigs and midriff of the leaves. The leaves are about the size and shape of those of the Olive. It is common about Jerusalem, and has often been supposed to be the material of which the crown of thorns was composed. Its flexible boughs would admit of its being applied to such a purpose.

(7.) *Naatzotz.*—The name of a tree mentioned in Isaiah, and translated 'thorn': "They (*i.e.*, the bee of Assyria) shall come, and shall rest all of them in the desolate valleys, and in the holes of the rocks, and upon all *thorns*, and upon all bushes" (Isa. vii. 19; so also lv. 13).

This is another species of *Sidra*, or Thorn tree, interpreted by the Rabbinical commentators of the *Zizyphus spina-christi*, the '*Nubk*' of the Arabs, a tree which is found in all the warmer parts of Palestine, and about Jerusalem, but which absolutely overruns a great part of the Jordan valley, making it one impenetrable

thicket. It often grows to a great size, and there is one overshadowing the source of the fountain Ain Dûk near Jericho, which would attract attention anywhere as a noble tree. Of this Zizyphus, or Jujube tree, it is generally supposed was plaited the crown of thorns placed on our Saviour's head before His crucifixion.

ZIZYPHUS SPINA-CHRISTI.

The flexible boughs are tough and well suited for the purpose, and the thorns are far more numerous and sharp than of those of the plant named above.

I have noticed dwarf bushes of the Zizyphus growing outside the walls of Jerusalem in the Kedron valley. But it is in the low plains that it reaches its full size, and changes its name to the *Dhóm* tree. It is sometimes

called the Lotus tree. The thorns are long, sharp, and recurved, and often create a festering wound. The leaves are a very bright green, oval, but not, as has been said, of the shape of the Ivy. The boughs are crooked and irregular, the blossom small and white, and the fruit a bright yellow berry, which the tree continues to bear in great profusion from December to June. It is the size of a small gooseberry, of a pleasant sub-acid flavour, with a stone like the Hawthorn, and, whether fresh or dried, forms an agreeable dish, which we often enjoyed, mixing the berries with '*leben*' or sour milk.

There is no fence more impervious than that formed of *Nubk*, and the Bedouin contrive to form one round their little corn-plots with trifling labour. They simply cut down a few branches and lay them in line as soon as the barley is sown. No cattle, goats, or camels will attempt to force it, insignificant as it appears, not more than a yard in height, and the twigs and recurved spines become so interwoven that it is in vain to attempt to pull the branches aside.

(8.) *Barkanim.*—This word is only used in Judges viii. 7, 16 : "When the Lord hath delivered Zebah and Zalmunna into mine hand, then I will tear your flesh with thorns of the wilderness and with briers" (*barkanim*), was the threat of Gideon to the men of Succoth, who refused him food when in pursuit of the Midianites, a threat which he afterwards fulfilled.

The thorns of the wilderness are doubtless either the *Naatzotz*, or Zizyphus tree mentioned above, or the *Shittah tree*, the Prickly Acacia, also a tree of the desert, which grows plentifully in the Jordan valley. *Barkanim* must be some thorn that could be used to scourge with, and is perhaps the Common Bramble (*Rubus fruticosus*), as common in many parts of Palestine as in England. About the fords of Succoth, the Zizyphus now grows in impenetrable thickets, and we remarked, on descending thither from Beisan (Bethshean), by the route Gideon would take, that the Bramble was very common, while lower down the Jordan valley we did not observe it. Whatever tree we take, Gideon had his instruments of punishment at hand.

(9.) *Sillon* occurs in Ez. ii. 6, and xxviii. 24, translated 'briers' and 'a pricking brier.' It is probably

identical with the Arabic word *sullaon*, which is applied to the sharp points on the ends of the palm-leaf, and also to the Butcher's-broom (*Ruscus aculeatus*), a plant common enough in many parts of Palestine.

Eryngium creticum is also a very common and noxious thorny plant in corn fields.

The other words, implying briers, thorns, or thistles

ACANTHUS SPINOSUS.

of different kinds, cannot be identified either by the Arabic names or the context. The true Brier or Wild Rose is probably not alluded to in Scripture, as, although several very beautiful species of Wild Rose occur, they are principally confined to the north of the country. we never noticed a true Wild Rose till we reached the marshes of Huleh (Waters of Merom). There we found two species, and two more on the higher slopes of Hermon and Lebanon.

There is one very remarkable thistle, which most probably had a distinct Hebrew name, from its abundance and conspicuousness; the true Acanthus (*Acanthus spinosus*), which overruns the corn fields as summer advances, and combines in itself the pricking powers of thistle, brier, quick-thorn, and nettle. It is perhaps the *Charûl* or Nettle of our version, in Job xxx. 7; Prov. xxiv. 31; Zeph. ii. 9. [See NETTLES.] Its stems are collected by the women of the Bedouin, and near Tabor are their principal fuel. They cut them up on the Plain of Hattin as soon as they wither, with long hooks, and then store them for use. This illustrates several scriptural expressions: "Before your pots can feel the thorns" (Ps. lviii. 9); "As the crackling of thorns under a pot" (Eccl. vii. 6); "The people shall be as the burnings of lime: as thorns cut up shall they be burned in the fire" (Isa. xxxiii. 12).

The well known Prickly Pear, now so common in all parts of Palestine, and ordinarily used as a hedge, is not among the scriptural plants, being a modern introduction from the American continent, which has overrun nearly the whole of the warmer portions of the Old World.

BRIER. [See BRAMBLE.]

BITTER HERBS.—We read in the ordinance of the Passover, "With bitter herbs they shall eat it" (Ex. xii. 8; Numb. ix. 11). The same word occurs in Lam. iii. 15, where it is rendered 'bitterness': "He hath filled me with bitterness; he hath made me drunken with wormwood."

There were five sorts of bitter herbs eaten by the Jews as a salad with the paschal lamb. These were, according to the Rabbis, lettuce, endive, chicory, and two others, the Hebrew names of which are not identified with known plants. There are, however, a very large number of bitter plants eaten as salads in Syria. The chicory has been named; the artichoke is eaten raw, as are the hearts of all the larger wild thistles. The leaves of the Elecampane (*Inula*) were gathered for salad by the Jehalin Arabs who accompanied us, as well as many of the cresses which grew in the southern desert, or at the south of the Dead Sea. There are not many of the *Cruciferæ* or *Compositæ* families of plants which Orientals do not employ for their varied bitter salads.

BULRUSH. FLAG. PAPER-REED. REED. RUSH. — Six Hebrew words are rendered by these names in our version, and as the translations are frequently interchanged, it may be convenient to consider the whole group together.

(1.) Heb. *gôme*, rendered 'bulrush' and 'rush': "She took for him an ark of bulrushes, and daubed it with slime and with pitch, and put the child therein; and she laid it in the flags by the river's brink" (Ex. ii. 3). "The land . . . that sendeth ambassadors by the sea, even in vessels of bulrushes upon the waters" (Isa. xviii. 1, 2). "In the habitation of dragons, where each lay, shall be grass with reeds and rushes" (*gôme*) (Isa. xxxv. 7). Its habit of growth is also alluded to in Job viii. 11: "Can the rush (*gôme*) grow up without mire?"

This plant is without doubt the celebrated papyrus of Egypt, the first material used in the manufacture of paper, which thence derives its name—the *Cyperus papyrus* of botanists, belonging to the Sedge family. It formerly abounded on the Nile, flourishing in the mire, in which Job describes it, and is represented by ancient writers as forming a complete forest on its banks. Now it is wholly extinct in Egypt, and is no longer found in Africa, excepting in marshes of the White Nile in Nubia, 7° north latitude.

But while extirpated there, it still lingers in two spots in Palestine, the only places in Asia where it occurs. It grows very luxuriantly in a swamp at the north end of the Plain of Gennesaret, close to the fountain of Ain et Tîn, and it covers many acres in the inaccessible marshes of the Huleh, the ancient Merom; and is known to the Arabs by its old name, '*babeer*,' of which 'papyrus' is simply the Latinized form. It is a beautiful and graceful plant, and flourishes in stagnant swamps, or in deep, soft mud.

The root is very bulky, spreading, and fleshy, and from it springs a tall, triangular stem, tapering upwards, and at first surmounted by a sheath. The stems are ordinarily about ten feet in height, but I have cut them sixteen feet long. Their diameter at the bottom is three inches. When the stem has nearly reached its full growth, the sheath, or involucel, opens, displaying a many-rayed umbel, like a broom or large tuft. The secondary umbels are composed of three or

four short rays, with an involucel of three awl-shaped leaflets. The flowers are a short spike at the extremity of each ray, and do not appear till towards the end of autumn.

CYPERUS PAPYRUS.

There is another species of papyrus found in marshes near Caiffa, and on the Plain of Sharon, which has often been mistaken for the true papyrus. It is the *P. syriacus*, and differs in several particulars from the more celebrated plant, the umbels falling all round in an umbrella, instead of to one side, like a plume.

Large masses of papyrus root are frequently washed up on the shores of Lake Huleh, and are collected by the Arabs for fuel. They also cut down the stems for a less noble purpose than they served under the fostering care of the Pharaohs, to make mats of which the walls of their huts are formed, and to thatch their roofs. Baskets,

sandals, cords, and other articles are also made from it. Its use for the construction of 'arks' or boats is twice alluded to in Scripture, and is frequently mentioned by ancient writers on Egypt, and it is still so employed by the modern Abyssinians.

But its renown arises from its having supplied the earliest known paper. The preparation was very simple. The stems were first pared, and the pith cut lengthwise into thin slices, which were laid side by side on a flat board. Other slices were laid across them at right angles, their surfaces being cemented together by a sort of glue. They were then subjected to great pressure and thoroughly dried, when the manufacture was completed.

(2.) *'Aróth* occurs only once, in Isa. xix. 7, where it is translated 'paper-reeds': "The paper-reeds by the brooks, by the mouth of the brooks . . . shall wither, be driven away, and be no more." This is certainly a mis-translation, as the papyrus had before been mentioned in the prophecy. It is generally held to mean the 'green herbage' (like the Arabic *'ara*), which abounds in flat, marshy places.

(3.) *Achu.*—Job inquires, Can the flag (*achu*) grow without water? (ch. viii. 11). The same word is rendered by 'meadow,' in Gen. xli. 2: "There came up out of the river seven well favoured kine and fatfleshed; and they fed in a meadow" (*achu*). Also ver. 18. From the passage in Job, where it is named with the papyrus, there can be little doubt but some specific plant is intended; and from those in Genesis it must have been one eaten by the cattle. The word itself is Egyptian, and not Hebrew. The *Cyperus esculentus*, or Edible Rush, is common in Egypt, and likewise the *Butomus umbellatus*, the beautiful Flowering Rush, which also grows in Palestine. We found it flourishing there alongside of the papyrus. Either plant would meet the requirements of the sacred text.

(4.) *Súph.*—Rendered flags in Ex. ii. 3, 5: "She laid it (the ark with the infant Moses) in the flags by the river's brink"; and Isa. xix. 6: "The reeds and flags (*súph*) shall wither." In Jon. ii. 5: "The depth closed me round about, the weeds (*súph*) were wrapped about my head," it is evidently rightly rendered 'weeds,' *i.e.*, sea-weed.

The Red Sea is invariably termed *Yam sûph, i.e.*, the sea of weeds, where *sûph* must be taken as a general name for all marine vegetation, as in the passage from Jonah. It may refer especially to the long, ribbon-like fronds and entangled masses of sea-weed; but it cannot be restricted to these, as sea-weeds or *algæ* do not exist

ARUNDO DONAX.

in the Nile. In Exodus it may be taken to mean generally 'weeds,' or marsh vegetation, such as the rank rushes on the border of the river.

(5.) *Agmôn*, 'reed' or 'cane.'—The word occurs twice in a proverbial expression in Isa. ix. 14 and xix. 15: "Head and tail, branch and rush" (*agmôn*), *i.e.*, top and bottom, utterly. In Job xli. 2, it is used for a weapon

made of reeds; perhaps the reed put through the gills of fish to carry them: "Canst thou put a hook in his nose?" And ver. 20: "Out of his nostrils goeth smoke, as out of a seething pot or caldron" (*agmôn*). The character of the plant is marked out by the other passage in which it occurs: "Is it to bow down his head as a bulrush?" (*agmôn*) (Isa. lviii. 5), where we see it must have had a yielding stem with a tuft or panicle at the top.

The reed of Egypt and Palestine is the *Arundo donax*, a very tall cane, growing twelve feet high, with a magnificent panicle of blossom at the top, and so slender and yielding that it will lie perfectly flat under a gust of wind, and immediately resume its upright position. This plant is doubtless the "reed shaken with the wind" of Matt. xi. 7.

It grows in great cane brakes in many parts of Palestine, especially on the west side of the Dead Sea, where, nourished by the warm springs, it lines the shore for several miles with an impenetrable fringe, the lair of wild boars and leopards, to the exclusion of all other vegetation. There it attains a gigantic size. On the banks of the Jordan it occurs in great patches, but is not so lofty.

(6.) *Kâneh*, 'reed' or 'cane,' from the same root as the English 'cane,' occurs in many passages of the Old Testament, and is the generic name for a reed of any kind. It sometimes denotes a 'stalk' of wheat, as in Gen. xli. 5, 22: "Seven ears of corn came up upon one stalk," or 'the branches' or stem of a candlestick (Ex. xxv. 31, &c.). It was also the name of a measure of length, equal to six cubits (Ez. xl. 5, &c.). In Job xxxi. 22 it is applied to the bone between the shoulder and the elbow: "Let mine arm fall from my shoulder-blade."

The equivalent Greek word is κάλαμος, which is similarly applied in the New Testament to the reed growing, to a measuring rod (Rev. xi. 1, &c.), and to a pen made of reed (3 John 13). There are a great number of species of reed and cane in Egypt and Palestine besides those mentioned above, as *Arundo scriptorum, Saccharum officinale*, &c.

BUSH, THE BURNING. Heb. *seneh*.—The word only occurs in those passages which speak of the appearance

of Jehovah to Moses "in the flame of fire in the bush" (Ex. iii. 2–4): "The good will of him that dwelt in the bush" (Deut. xxxiii. 16).

The *seneh* denotes some particular kind of bush, and appears to be the equivalent of the Egyptian '*Sûnt*,' the *Acacia nilotica*, very like the Seyal, or *Acacia seyal*, the Shittah tree, but smaller and closer in growth. The *A. nilotica* is common in the Peninsula of Sinai, which mountain is by some conjectured to derive its name from the *seneh* bush. Some have supposed the bramble to be intended; but though the monks of St. Catharine have planted one bush on the top of the mountain, it cannot be looked upon as an indigenous shrub. The Hebrews express bushes generically by another word. [For a description of the Acacia, see SHITTAH TREE.]

ANDROPOGON SCHÆNANTHUS.

CALAMUS.—The name given to some aromatic substance obtained from a foreign species of reed. It was one of

the ingredients of the holy anointing oil: "Take thou . . . . of sweet calamus (Heb. *keneh bosem*) two hundred and fifty shekels" (Ex. xxx. 23). So in Jer. vi. 20: "To what purpose cometh there to me incense from Sheba, and the sweet cane (Heb. *kaneh hattób*) from a far country?" where the same substance is alluded to (*tób* meaning good or sweet). The same sweet cane is expressed by the word *keneh* alone: "Spikenard and saffron, *calamus* and cinnamon, with all trees of frankincense" (Cant. iv. 14). "Thou hast bought me no sweet cane with money" (Isa. xliii. 24). "Cassia and calamus (Heb. *kaneh*) were in thy market" (Ez. xxvii. 19).

From a comparison of these passages it is evident that the *Calamus* was not a sweet cane like the sugar-cane, of which one species, the Sweet Sorghum, was in later times cultivated extensively in the Valley of the Jordan; but that it was an *aromatic* cane, imported from the East, either from Arabia Felix, or more probably from India. No aromatic reeds have been found in Syria, but there are several in India, one of which, the Lemongrass (*Andropogon schœnanthus*), is well known. There are other reeds in India from which aromatic and medicinal oils are extracted.

CAPER. [See HYSSOP.]

COCKLE occurs only once in Scripture: "Let thistles grow instead of wheat, and cockle [Heb. *baoshah*] instead of barley" (Job xxxi. 40), where the marginal reading is 'noisome weeds.' The same word occurs in the plural in Isa. v. 2, 4, where it is translated 'wild grapes.' Whatever it be, it must not be confounded with what is called the Wild Vine (*Vitis labrusca*), a North American plant.

Baoshah is derived from a root signifying to stink like carrion, and may, therefore, denote any noisome weeds or offensively-smelling plant. There is a smut which attacks corn, and has a putrid smell—*Uredo fœtida*. The passage in Job might also allude to the troublesome grasses, like the 'tares' of the New Testament (*Lolium temulentum*), *i.e.*, darnel, or our couch-grass, which infests corn fields. Some of the arums of the corn plains have an intolerably fœtid stench, and may well suit the derivation of the word. The stinking arums are common in Galilee.

CORIANDER (*Coriandrum sativum*), a well known annual

umbelliferous plant, with white blossoms, which produce small globular seed vessels, bearing small greyish-white round seeds, of a pleasant spicy flavour. It is cultivated in England for confectionery, and is wild in Egypt and Palestine. We found it abundant in the Valley of the Jordan. The seeds are used very largely as a spice to mix with bread in the East, as well as to give an aromatic flavour to sweetmeats. The Hebrew name is *gad*. It is only mentioned in Scripture as that to which the Israelites compared the Manna. They "called the name thereof Manna: and it was like coriander seed, white" (Ex. xvi. 31). "The manna was as coriander seed, and the colour thereof as the colour of bdellium" (Numb. xi. 7).

Corn.—There are many distinct words, relating to Corn generally, in Hebrew. Thus Corn, as it grows without any preparation, as in Numb. xviii. 27, and in all cases where the words 'corn and wine' occur, is '*dagan*.' Another word represents Standing Corn, as in Judg. xv. 5, when Samson sent the foxes with firebrands into the "standing corn ('*kamah*') of the Philistines." '*Bar*' (meaning clean), exactly the same word as the modern Arabic, and used similarly, is *clean* winnowed corn, as in Gen. xli. 49: "Joseph gathered corn as the sand of the sea"; and Prov. xi. 26: "He that withholdeth corn, the people shall curse him." '*Shibboleth*,' 'an ear of corn': "Ruth the Moabitess said unto Naomi, Let me now go to the field, and glean *ears of corn*" (Ruth ii. 2). So also, Gen. xli. 5, 'ears of corn' in Pharaoh's dream.

'Green corn' (Lev. ii. 14); 'old corn' of the past year (Josh. v. 11, 12); 'a corn stack' (Ex. xxii. 6); a 'sheaf of corn' (Ruth iii. 7); 'pounded corn' (Lev. ii. 16); 'parched corn' (Lev. xxiii. 14), are all expressed by single distinct words.

The ordinary cereals of Palestine are wheat, barley, millet, and spelt, translated fitches [which see]. Oats are unknown. Rye we never saw, though possibly it may be grown. [See Rye.]

Cotton.—The word does not occur in our version, but Cotton is once named expressly in the Old Testament, where, in Esth. i. 6, we read that in the court of the garden of the king's palace "were white, *green* ('*carpas*'), and blue hangings," where '*carpas*' should be rendered, not 'green,' but 'cotton.' The sense is, 'Where were

hangings of white and violet-coloured cotton.' The Hebrew '*carpas*' has been turned into a common word both in Greek and Latin, κάρπασος, *carbasus*, cotton or awnings.

It is doubtful whether the Egyptians were acquainted with the use of Cotton at a very early period, though they certainly were so before the time of the Greek Conquest, B.C. 333. Many have supposed that the 'fine linen' of the Old Testament was Cotton, but there is no word for the Cotton plant, as there is for flax, nor has Cotton been proved to exist in the swathings of the early mummies. But Sir Gardner Wilkinson states that Cotton cloth was among the fabrics of Egypt, and that it was worn by all classes. The use of Cotton clearly came from India, where it has been manufactured from the very earliest times of which we have any record, and it was the conquests of Alexander which first made the nations of Europe acquainted with it. In Persia Cotton was employed probably almost as soon as in India; and we naturally find it mentioned in the Book of Esther, the earliest record in Scripture which gives us any details of interior Persian life.

The Cotton plant (*Gossypium herbaceum*) is now largely cultivated in Palestine, and is one of its most important staples. The cultivation has extended rapidly within the last few years. It is not manufactured on a large scale, but mostly exported to France. The Arab women, however, are clad almost entirely in blue cotton, spun, woven, and dyed with their own hands. There are some few mills for cleaning but none for spinning Cotton. In the maritime plains, and on the marshes of Huleh, large tracts have recently been reclaimed for Cotton. The appearance of the Cotton fields at the end of summer, when the yellow blossoms are open, is very beautiful.

CUCUMBERS. Heb. *kishuim*. Garden of Cucumbers, *Mikshah*.—Each word only occurs once: "We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlic" (Numb. xi. 5). "The daughter of Zion is left as a cottage in a vineyard, as a lodge in a garden of cucumbers, as a besieged city" (Isa. i. 8).

The Cucumbers, with the Melon, Pumpkin, Watermelon, and the other fruits of this genus, have ever been among the principal vegetables of Egypt, for the culti-

vation of which the rich soft soil, easily irrigated, and the heat of the summer, are peculiarly adapted.

Two sorts of Cucumber are grown in Egypt and Palestine—the large *Cucumis chate*, and the common *Cucumis sativus*. The leaf of *C chate* is not so indented as that of the other, and the fruit is much larger, but with less flavour and firmness, exceeding the size of our finest cultivated sort. The Common Cucumber, from the little attention paid to its cultivation, and the poverty of the soil, is much smaller than the fruit grown in our hotbeds, but yields a very large crop. It is often planted in Palestine early, and I have eaten it in the Plains of Moab in March; but, in the higher parts of the country, the cucumbers are set in the fields after the barley crop has been taken off, if there is sufficient rain, 'the latter rain,' to enable the ground to be tilled. On the Plain of Gennesaret, and other similar localities, the Cucumber fields are artificially irrigated. Large tracts are planted with cucumbers, and we observed near Kedes a field of several hundred acres devoted exclusively to its cultivation. Both sorts are planted in Palestine.

Cucumbers form an important item in the summer food of the poor, and are eaten with the rind on, without any condiment. In the oppressive heat of summer they form a most grateful vegetable. I remember seeing dinner served out to an Arab school in Jerusalem, which consisted of a thin barley-cake and a raw cucumber to each boy. The Cucumber is perhaps the commonest and cheapest summer vegetable, nor is it ever complained of as indigestible. It is often eaten with vinegar, or boiled with onions, or, still more generally, boiled with the seeds scooped out, and their place supplied with force-meat.

The "lodge in the garden of cucumbers" may still be seen in many of these fields, erected to protect them chiefly from the wild animals, as the jackals, which are very destructive. It is a very rude affair. Four poles are stuck in the ground, rafters are bound across their top, and in these are entwined boughs, cut from the oleanders by the water-courses, as a sort of open thatch, while larger branches, and sometimes scraps of matting, are placed in a sloping direction against them to shelter the occupant. As soon as the crop is gathered and the lodge forsaken, as Dr. Thomson observes, "the poles will fall down or lean every way, and the green boughs

with which it is shaded will be scattered by the winds, leaving only a ragged, sprawling wreck—a most affecting type of utter desolation." Every Eastern traveller is familiar with these squalid ruins. Job, speaking of the passing prosperity of the wicked, compares it to one of these lodges: "He buildeth his house as a moth, and as a booth that the keeper maketh" (xxvii. 18). The Hebrew name of the Cucumber is found with very little variation in all the Oriental languages.

CUMMIN. Heb. *cammôn*, Gr. κυμῖνον (*Cuminum sativum*). —A well known umbelliferous plant, cultivated for the sake of its seeds, which are often used as a spice in the East, both bruised to mix with bread, and also boiled in the various messes and stews which compose an Oriental banquet. It is also used medicinally as a stimulant. It is something like fennel, but not so tall. We did not meet with it wild, though it is cultivated in Palestine. It is, however, probably indigenous, as it gave name to a village near Acre.

The mode in which the seeds of Cummin are beaten out is alluded to by Isaiah: "Doth he not cast abroad the fitches, and scatter the cummin? . . . For the fitches are not threshed with a threshing instrument, neither is a cart wheel turned about upon the cummin; but the fitches are beaten out with a staff, and the cummin with a rod" (xxviii. 25, 27). So tender and small a seed would be destroyed or crushed if threshed like the hard corn. The same mode of beating out the Cummin is still practised, while the corn is *trodden* out with oxen. Our Lord also refers to Cummin, along with Mint and Anise, as one of the insignificant garden herbs, of which the Scribes and Pharisees were punctilious in exacting and paying the tithe. [See Matt. xxiii. 23.]

DOVE'S DUNG. Heb. *chiryônim*, literally translated.—In the history of the siege of Samaria by Ben-hadad we read: "They besieged it, until an ass's head was sold for fourscore pieces of silver, and the fourth part of a cab of dove's dung for five pieces of silver" (2 Kings vi. 25). So incredible has so filthy and desperate resort appeared even in the greatest straits of famine, that commentators have endeavoured to explain the word as the name of some plant, not usually used for food, and have suggested the root of the 'Star of Bethlehem' (*Ornithogalum umbellatum*) as the substance intended in the

text. The probability of the conjecture has been supported by the fact that the Arabs do give the name of 'sparrow's dung' to a species of *Salsola* or Soap plant.

But, after all, there are other instances on record of food quite as revolting and nauseous being resorted to in the extremity of a siege. Several of these are quoted by Celsius in commenting on this passage. The notice of the ass's head implies the nauseousness as well as the high price of the food to which the besieged inhabitants of Samaria were reduced, and so also the 'dove's dung' may be taken literally.

There are many species of *Ornithogalum* in Palestine. The bulbous root has often been used as food. The derivation of the Latin name of this flower, 'birds' milk,' is possibly from the dung of birds, which presents the same combination of colours as do the green and white so curiously combined in the blossoms of this group of plants.

A small species of *Holcus sorghum*, called *khuruwwa*, perhaps identical with the Hebrew *chiryonim*, is still extensively cultivated in Kurdistan. This millet, from being small and round, may have been called by the Hebrews in olden time "*Khari of Doves*," or, as we should say, "Doves' seed."

Fitches.—Two words are thus translated in our version which designate very distinct plants. (1.) Heb. *ketzach*: "When he hath made plain the face thereof, doth he not cast abroad the fitches? . . . For the fitches are not threshed with a threshing instrument . . . but the fitches are beaten out with a staff" (Isa. xxviii. 25, 27).

The *ketzach* is without doubt the *Nigella sativa*, a small annual of the order *Ranunculaceæ*, which grows wild in the Mediterranean countries, and is cultivated in Egypt and Syria for its seeds, which are black (whence its name), and are used as a condiment. They are hot to the taste, and are sprinkled thickly over the flat cakes of the country before they are baked, in the same way that caraway seeds are used among ourselves. The *Nigella* seeds are to be seen on all the little provision stalls in the bazaars of Palestine. The leaves of the plant are laciniated like those of the ranunculus, the flower yellow, or in some species blue, and the seed vessel is a cup divided into partitions or cells with a fringe of horns.

In examining its seed and comparing it with that of the Cummin, we see the minute accuracy of the expres-

sion in Isaiah. Neither seed could bear the heavy cylinder of the corn-threshing instrument, or the feet of oxen; but while the Cummin can be easily separated from its slight case by a slender rod, such as we see employed, the harder pod of the *Nigella* requires to be beaten with a stouter staff in order to dislodge the seed.

There is another species of *Nigella* (*N. orientalis*) which we found growing wild very abundantly. Its seed is employed for the same purpose, but is inferior in pungency to the other sort. *Nigella* seed is chiefly used in England for adulterating pepper.

In Ez. iv. 9 the prophet is commanded: "Take thou also unto thee wheat, and barley, and beans, and lentiles, and millet, and fitches" [marg. 'spelt,' Heb. *cussemeth*], where the margin is undoubtedly correct, and the reading 'fitches' an error. The same word is elsewhere translated 'RYE' [which see].

FLAG. [See BULRUSH.]

FLAX. Heb. *pishtah* (*Linum sativum*).—The history of the cultivation and manufacture of Flax carries us back to the very earliest records of man's civilization, and linen cloth is among the most ancient relics we possess, long antecedent to written chronicles, in the coverings of the oldest mummies of Egypt. The importance of Flax in that country is attested by the mention of it in the account of the plague of hail: "The flax and the barley was smitten, for the barley was in the ear, and the flax was bolled," *i.e.*, was in flower (Ex. ix. 31). This would be the end of February. Its use in Egypt was universal, as it was the exclusive textile fabric for clothing and for every other purpose, woollen cloth being not there employed, and cotton being a later introduction. From Isa. xix. 9 we see that the working in Flax continued to be a staple in that country: "Moreover, they that work in fine flax, and they that weave networks, shall be confounded."

Its cultivation had preceded the entrance of Israel into Canaan, for when Rahab hid the spies at Jericho, "She had brought them up to the roof of the house, and hid them with the stalks of flax, which she had laid in order upon the roof" (Josh. ii. 6), where we notice both the early period at which the Flax harvest was ripe at Jericho in spring, and also the custom of drying the stalks by exposing them to the heat of the sun, spread

out on the flat roofs of the houses, as is practised to this day in Egypt and Syria. Elsewhere the stems are now dried artificially.

Flax continued to be a crop of importance in Palestine, as we see from Hosea, where its being withheld is threatened as a national judgment along with a famine of corn and wine: "Therefore will I return, and take away my corn in the time thereof, and my wine in the

FLAX.

season thereof, and will recover my wool and my flax given to cover her nakedness" (ch. ii. 9).

The virtuous woman "seeketh wool and flax and worketh willingly with her hands" (Prov. xxxi. 13). The robes of the priests were of linen (Ex. xxxix. 27, 28; Ez. xliv. 17). Flax was also used for lamp-wicks. This is referred to in Isa. xlii. 3: "The smoking flax shall he not quench"—quoted in St. Matthew xii. 20, meaning that though the flame be faint and feeble, sending forth as it were its expiring smoke, yet will not the merciful Redeemer put it out, but rather cherish and revive it.

The flax stalks when dried were peeled or split, whence the name *pishtah, i.e.*, 'peeled;' next steeped in water to destroy the pulp, and then hackled with a comb, alluded to in Isa. xix. 9. The short, coarser fibres were thus separated. Tow is mentioned as weak and worthless for cordage in Judg. xvi. 9, where Samson "brake the withs, as a thread of tow," and Isa. i. 31, "The strong shall be as tow." The cultivation of Flax has much diminished both in Egypt and Palestine, having been superseded by cotton; but patches of it may be occasionally seen.

Galbanum, Heb. *chelbenah*, is mentioned in Ex. xxx. 34 as one of the perfumes to be employed in mixing the holy incense. The gum is well known in modern commerce, though strangely enough we are in doubt as to the plant from which it is procured. The gum is a dark-yellow resin, which, when burnt, emits a pungent and not very agreeable odour, and is considered useful for banishing mosquitoes. It is obtained both from India, Persia, and the Levant. The Syrian Galbanum is believed to be produced from the *Galbanum officinale*, an umbelliferous plant; but it is certainly not from this that the Indian resin is procured, but from *Ferula galbanifera*.

Gall. Heb. *rôsh*.—Some plant is usually intended by *rôsh*, though in Deut. xxxii. 33, "Their wine is the poison [Heb. *rôsh*] of dragons and the cruel venom of asps," and in Job xx. 16, "He shall suck the poison [Heb. *rôsh*] of asps," it denotes the poison or venom of serpents.

In Hos. x. 4, "Judgment springeth up as hemlock (*rôsh*) in the furrows of the field," it is translated 'hemlock,' elsewhere 'gall.' From the passage in Hosea we see that *rôsh* was a quick-growing weed of the corn fields, and from Deut. xxxii. 32, "Their grapes are grapes of gall," we may conjecture that some berry-bearing plant was intended. It was evidently a poisonously-bitter herb, from its being frequently used in conjunction with wormwood, as in Deut. xxix. 18, "Lest there should be among you a root that beareth gall and wormwood;" and Jer. ix. 15, "I will feed them, even this people, with wormwood, and give them water of gall to drink." So ch. viii. 14, and xxiii. 15.

The most probable conjecture—for there are no grounds for drawing any certain conclusion—is that the Poppy is

the plant intended. *Papaver arenarium* grows everywhere in Palestine; it springs up very quickly in corn fields, and its juice is most bitter and poisonous. In this case the "water of gall," Jer. viii. 14, may be the poisonous extract, or opium.

In the Gospel of St. Matthew we read that just before our Lord's crucifixion the soldiers "gave him vinegar to drink, mingled with gall" (χολῇ) (xxvii. 34), while St. Mark says, "They gave him to drink wine, mingled with myrrh" (ἐσμυρνισμένον) (xv. 23). Both evangelists undoubtedly relate the same circumstance, the wine of St. Mark's Gospel being the common sour wine given out to Roman soldiers, and frequently, from its acidity, called vinegar, as it is by St. Matthew. The best explanation is that of Hengstenberg: "Matthew, in his usual way, refers to *theological* views in his narrative of the drink; always keeping his eye on the prophecies of the Old Testament, he speaks of vinegar and gall for the purpose of rendering the fulfilment of the passage in the Psalms more manifest. Mark again, according to his usual way, looks rather at the *outward* quality of the drink; it was according to him (sour) wine mingled with myrrh, the usual drink of malefactors" (*Hengst. Ps.* vol. ii. p. 374). It was customary to give them a cup of wine with some drug or spice in it, partly perhaps to deaden pain, but also to sustain them till the punishment was completed. But also the Romans were in the habit of seasoning sour wines with various drugs and perfumes, such as myrrh, cassia, pepper, &c., to preserve them. The drink, then, may have been simply the beverage of the soldiers which happened to be at hand.

In Job xvi. 13, "He poureth out my gall upon the ground," and in xx. 25, a different Hebrew word is rendered 'gall,' meaning the gall of the human body, which word is also applied in Job xx. 14, "the gall of asps" to the poison of serpents.

Garlic, Heb. *shoom*, mentioned once among the list of vegetables and good things which the Israelites had enjoyed in Egypt, and which they remembered with regret and murmuring in the wilderness (Numb. xi. 5). It is the *Allium sativum*, a well known vegetable akin to the Onion, and much cultivated in Egypt and Syria. The Wild Garlic is common in woods in England, and a very great number of wild species, some of them with

very handsome but strong-smelling flowers, pink as well as white, are found in Palestine.

Gourd, Heb. *kikayon*, occurs only in Jonah: "So Jonah went out of the city . . . . and there made him a booth. . . . And the Lord God prepared a gourd, and made it to come up over Jonah, that it might be a shadow over his head. . . . But God prepared a worm when the morning rose the next day, and it smote the gourd that it withered. . . . And God said to Jonah, Doest thou well to be angry for the gourd? . . . . Thou hast had pity on the gourd, for the which thou hast not laboured, neither madest it grow; which came up in a night, and perished in a night" (Jon. iv. 5–10).

Whole sheets have been filled with the discussion as to what this Gourd was. The dispute is an old one, for when St. Jerome translated it Ivy, St. Augustine was so offended with the translation that he denounced it as heresy. The most popular rendering has been that which identified the *kikayon* with the Arabic *El keroa*, the Castor-oil tree (*Ricinus communis*). The strongest argument in favour of this interpretation has been the derivation of the word from the Egyptian *kiki*, and that the Rabbinical name for castor-oil is kiki-oil. The *Ricinus* is a large shrub rather than a tree, and has large palmate leaves with serrated lobes, and spikes of blossom which produce the seed, from whence the well known medicinal oil is extracted in small rough husks. It is wild in all Oriental countries, but it is not a tree used for shade, being of a straggling growth, though of course any one might find shelter from the sun under its large foliage. Generally, however, it would be useless for the purpose. It reaches a considerable size—twelve or fifteen feet in height in the warmer parts of Palestine.

The etymological argument in favour of the *Ricinus* is, no doubt, strong, but practical reasons cause me to lean strongly to the rendering of our English version, Gourd, *i.e.*, the Bottle-Gourd (*Cucurbita pepo*). Niebuhr, supporting this view, observes in his 'Voyages,' that at Mosul, where both plants grow, the Jews maintained that it was the Cucurbita—*El kerra*, and not the Castor-oil tree, *El keroa*—which provided shade for the prophet.

In Palestine the vernacular names are almost identical in sound, 'Kurah' being the Gourd, 'Khurwah' the Castor-oil tree. But the Gourd is very commonly em-

ployed in Palestine for the purpose of shading arbours. Its rapid growth and large leaves render it admirably adapted for training on trellis-work. In the warmer parts of America also, it is the favourite plant for shading arbours; and so rapid is its growth that it will often shoot a foot in a day. In the gardens about Sidon many an arbour of gourds may be seen. But the plant withers as rapidly as it shoots, and after a storm or any injury to the stem, its fruit may be seen hanging from the leafless tendrils, which so lately concealed it, a type of melancholy desolation.

Now, we are expressly told in the history that Jonah

CUCUMIS PROPHETARUM.

'made him a booth,' and that after it was made God prepared the '*kikayon*' to cover it. This is exactly the office of the Gourd. Jonah had erected his fragile lodge of boughs, whose leaves would rapidly wither, and a further shade would be required. Then the tendrils of the Gourd would seize the boughs and provide shelter for the prophet. But no one who knows the *Ricinus* can conceive it affording any shelter over an existing arbour, nor has it the qualities of rapid growth and sudden decay so characteristic of the Gourd.

Gourd, Wild.—The word '*pakknoth*,' from a root signifying 'to burst,' is translated 'wild gourd' in 2 Kings iv. 38–40: "Elisha came again to Gilgal: and there was a dearth in the land. . . . And one went out into

the field to gather herbs, and found a wild vine, and gathered thereof wild gourds his lap full, and came and shred them into the pot of pottage: for they knew them not. So they poured out for the men to eat. And it came to pass, as they were eating of the pottage, that they cried out, and said, O thou man of God, there is death in the pot. And they could not eat thereof."

We may observe that this Wild Gourd is spoken of as the fruit of a wild vine, *i.e.*, of a creeping plant having vine-shaped leaves and tendrils, just as the word Vine has been provincially applied in our own language as

CITRULLUS COLOCYNTHUS.

a generic term for creeping plants with tendrils, *e.g.* 'grape-vine,' 'melon-vine,' in the dialect of the West Indian negroes.

There are many species of the Gourd family wild in Palestine. We found *Cucumis prophetarum*, the Globe Cucumber; *Citrullus colocynthus*, the Colocynth; and *Ecbalium elaterium*, the Squirting Cucumber. I conceive that though the Squirting Cucumber will answer the requirements of the text, yet that the Colocynth is undoubtedly the plant in question. The Squirting Cucumber is not so bitter, nor does it bear the same resemblance to the good fruit. Besides, it is common over the whole country,

and ought to have been well known to the prophet's servant. Now Elisha, we read, had just come down to Gilgal, between Jericho and the Dead Sea, and doubtless the gatherer of the pottage would be his attendant who had accompanied him from the upper country. The Colocynth grows most abundantly on the barren sands near Gilgal, and all round the Dead Sea on the low flats, covering much ground with its tendrils, which reach a prodigious length, and bearing great quantities of fruit. We never saw the Colocynth elsewhere. Indeed, it is exclusively a plant of the dry and barren sandy deserts: or growing on volcanic sand, as at Pantellaria. An inhabitant of the upper country could not, therefore, be expected to recognise it, but would be attracted at once by the beautiful appearance of the fruit, and gather it eagerly for the Wild Melon, or Pumpkin.

Near Engedi we saw enormous quantities of the *Citrullus colocynthus*, which has a palmate, vine-like leaf, and is a very beautiful-looking fruit, of the size and colour of an orange. The pulp inside rapidly dries when it is ripe, and forms a powder, the well-known bitter and drastic medicine. It is also used to make touch-paper by the Arabs.

Another argument in favour of the Colocynth is that the same word, in the masculine gender, '*pekkaim*,' is used to describe some of the ornaments in Solomon's Temple, translated 'knops': "The cedar of the house within was carved with knops and open flowers" (1 Kings vi. 18). "Under the brim of the brazen sea round about there were knops compassing it. . . . The knops were cast in two rows, when it was cast" (vii. 24). The form of the Colocynth would suggest an elegant ornament, which could scarcely have been adapted from the shape of the other fruit suggested.

Grass.—Several words are so translated. '*Yered*,' occurring in Numb. xxii. 4: "Now shall this company lick up all that are round about us, as the ox licketh up the grass of the field," and in many other passages means simply that which is green, 'herbage.'

Desher, or 'green grass,' is the word most exactly answering to 'grass,' and is used in contradistinction to *chatzir*, 'dry fodder,' or 'fodder' generally, and to *éseb*, 'herbs,' fit for the use of man. Thus in Gen. i. 11, 12: "Let the earth bring forth grass (*desher*), the

herb (*'sheb*) yielding seed. . . . And the earth brought forth grass, and herb yielding seed after his kind." It is the word most commonly expressed by grass in our version.

Chatzir is translated 'grass' in the following passages: There "shall be grass with reeds and rushes" (Isa. xxxv. 7). "All flesh is grass, and all the goodliness thereof is as the flower of the field. The grass withereth, the flower fadeth" (ch. xl. 6, 7). "They shall spring up as among the grass, as willows by the water-courses" (ch. xliv. 4). "The son of man which shall be made as grass" (ch. li. 12). The word is derived from a root meaning 'to be green,' and is evidently a generic term [see HAY], including whatever grows in pastures suitable for the food of cattle.

In a country with so many various climates and soils as Palestine, there is, of course, great variety in the natural grasses. My own collection contains about seventy species, probably not more than half of those to be found there, especially as we collected scarcely any on the maritime plains. Yet true pastures, like those of England, are very few, and of artificial grasses there are none. The grasses of Palestine may be divided into three groups: (1.) Those of the bare downs, such as the south country of Judah, short and close, springing up after the rains and continuing but a short time. These are for the most part species belonging to Arabia and the drier parts of North Africa. (2.) The grasses of the coast plains, containing many South European and a few British species, growing tall and luxuriant in spring, and forming a rank meadow for a short time, and then after the seed has ripened continuing to grow an after-grass from below, and affording herbage more or less throughout the year. (3.) The grasses of the Jordan valley and the Dead Sea basin are very peculiar, seldom becoming turf-like, or compact in growth, shooting up in early spring with the greatest luxuriance, and then as rapidly seeding and dying down, scorched and burnt up at once, and leaving for the rest of the year no other trace of their existence than the withered and straggling stems from which the seeds and their sheath have long been shaken. They are for the most part Arabian species, some North African and Sicilian, and even (as *Pennisetum cenchroides*) South African species.

HAY.—The word '*chatzir*,' which has been mentioned as sometimes translated 'grass,' is twice rendered 'hay': "The hay (*chatzir*) appeareth, and the tender grass sheweth itself" (Prov. xxvii. 25). "The hay is withered away, the grass faileth, there is no green thing" (Is. xv. 6). In neither passage does the Hebrew mean 'hay' in our sense of the term, but rather the tall stems or blades of grass.

There is no hay in the East, *i.e.*, the grass is never cut green, artificially dried with the juices in it, and stored for winter use. Yet the grass is cut with the scythe for the stalled cattle, whether the withered stalks, or, as we have sometimes seen, a considerable quantity cut green and laid in a heap for future use. So it was also mown of old, as we find by various allusions: "They shall soon be cut down like the grass, and wither as the green herb" (Ps. xxxvii. 2). "He shall come down like rain upon the mown grass" (Ps. lxxii. 6). "Grass upon the house-tops, which withereth afore it groweth up: wherewith the mower filleth not his hand; nor he that bindeth sheaves his bosom" (Ps. cxxix. 6, 7).

'Dried grass,' or 'hay,' is expressed by another word in Hebrew, *chashash*, which is translated 'chaff' in the only two passages in which it occurs. It is from a root signifying 'to be dry': "As the fire devoureth the stubble, and the flame consumeth the chaff" (Isa. v. 24). "Ye shall conceive chaff, ye shall bring forth stubble" (ch. xxxiii. 11). The word is connected with the Arabic *cheshîsh*, which they apply in North Africa to the dry, juiceless herbage of the desert (ready made hay) as distinguished from the fresh grass of better soils. The after-grass, or second crops, after the mowing is spoken of in Amos vii. 1: "Behold, he formed grasshoppers in the beginning of the shooting up of the latter growth; and, lo, it was the latter growth after the king's mowings."

We can hardly leave the subject of grass and hay without noticing the frequency of the scriptural imagery, some instances of which have been quoted above, taken from the grass, of the transitory character of man's existence here. 'My heart is smitten and withered like grass,' is a comparison perpetually before the mind of psalmist and prophet. In our moist, northern climate, its force is scarcely seen, for our verdure is almost perpetual, and

in winter the meadows are not colourless. But let a traveller ride over the downs of Bethlehem in February, one spangled carpet of brilliant flowers, and again in May, when all traces of verdure are gone; or let him push his horse through the deep solid growth of clovers and grasses in the Valley of the Jordan in the early spring, and then return and gallop across a brown, hard-baked, gaping plain in June, with only here and there the withered stems of thistles and centaureas to tell that life had ever existed there, and the scriptural imagery will come home to him with ten-fold power. The beauty is gone, the grass is withered, the flower is faded, a brown and dusty desert has supplanted a lovely garden.

HEMLOCK.—The translation in our version in Hos. x. 4 of *rôsh*, elsewhere 'gall,' and supposed to be the poppy. [See GALL.] In Amos vi. 12, "Ye have turned judgment into gall, and the fruit of righteousness into hemlock," Hemlock stands for *La'anah*, 'Wormwood' [which see].

HERBS.—Various Hebrew words are so translated. About most of them there is no question, and they are admitted to be general terms: but in 2 Kings iv. 39, "One went out into the field to gather herbs;" Isa. xviii. 4, "Like a clear heat upon herbs;" and xxvi. 19, "Thy dew is as the dew of herbs," where alone the word *ôroth* occurs, some particular plant is believed to be signified.

Several commentators with some show of reason consider that *ôroth* is the 'Colewort' and other plants of the Cabbage tribe, while others suggest 'Mallows.' It seems very probable that Colewort, or Cabbage, not otherwise mentioned, is the true rendering.

HYSSOP. Heb. *ézôb*, Gr. ὕσσωπος.—Few biblical plants have caused more discussion than the Hyssop. Celsius has devoted no less than forty-two pages to the question without arriving at any satisfactory conclusion. In this respect the knowledge of Solomon has certainly been lost. One difficulty arises from the Septuagint having translated *ézôb* always by ὕσσωπος, while it is possible they merely took their rendering from the similarity of the words in sound.

But even then it is uncertain what the Greek Hyssop was, though most botanists believe it to have been a species of *Satureia*, a labiate plant, allied to the Mint (*S. græca*). One species, *Satureia thymbra*, we found abun-

dant on Mount Carmel. Others have suggested the Marjoram (*Origanum ægyptiacum*). But though St. Paul, in speaking of the Hyssop of purification, adopts the common rendering of the Greek version (Heb. ix. 19), it seems most probable, from a comparison of the passages in which it is mentioned, that the *êzôb* was not either a mint or a marjoram, but the Caper (*Capparis spinosa*).

HYSSOP. (*Capparis spinosa.*)

Hyssop was used to sprinkle the door-posts of the Israelites in Egypt with the blood of the paschal lamb: "Ye shall take a bunch of hyssop, and dip it in the blood that is in the bason, and strike the lintel and the two side posts with the blood that is in the bason" (Ex. xii. 22). It was employed in the purification of lepers and leprous houses (Lev. xiv. 4, 6, 51); and in the sin-offering of the red heifer (Numb. xix. 6, 18).

From its use in the purification of the leper, and in the sin-offering, the Psalmist applies it typically to the purification of the soul from guilt: "Purge me with hyssop, and I shall be clean" (Ps. li. 7).

If the Hyssop of the New Testament be the same, we have it mentioned in John xix. 29: "They filled a spunge with vinegar: and put it upon hyssop, and put it to his mouth"; while St. Matthew (xxvii. 48) and St. Mark (xv. 36) do not mention the Hyssop, but state they "put it on a reed." The Hyssop, therefore, must have had a stalk of some length, unless it were a bunch of twigs fastened to the end of a stick, on which the sponge was placed.

Putting together all the passages in which Hyssop is mentioned, we find that it was a plant that grew in Egypt; that it grew also in the desert of Sinai, and in Palestine; that it grew out of chinks in walls and cliffs, for Solomon "spake of trees, from the cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall" (1 Kings iv. 33); and that it was capable of producing a stem three or four feet in length. All these requirements meet in the Caper (*Capparis spinosa*), and a further argument is the similarity of the Arabic name of the Caper to the Hebrew *ézób*, *El asaf*.

The Caper grows plentifully on the ruins and on the sandy desert tracts of Egypt. It is a striking feature in the Sinaitic desert. Dean Stanley remarks: "The lasaf, or asaf, the caper plant, the bright green creeper, which climbs out of the fissures of the rocks in the Sinaitic valleys, has been identified on grounds of great probability with the hyssop or *ézób* of Scripture, and thus explains whence came the green branches used, even in the desert, for sprinkling the water over the tents of the Israelites."

In the deserts of North Africa, where it is known by the same name, *El asaf*, the Caper is sometimes a very striking object. After travelling for many hours without detecting a green leaf, I have been often arrested on entering some desolate and thirsty gorge, by the large patches of the deepest green which clung here and there to the sides of the cliffs, in startling contrast with all around, and without the slightest trace of moisture whence life and verdure could be nourished.

In the Holy Land, we saw the Caper hanging from the walls of Jerusalem, and especially round the Harem, the

old temple area. It also clings to the steep rocks in the gorge of the Kedron, particularly in the desolate portion between Marsaba and the Dead Sea. On the face of the Mount of Temptation overhanging Jericho, the Caper was letting down its festoons of beautiful blossom in the month of January. I also found it in the gorge of the Litany or Leontes. On the sandy plain between Jericho and the Jordan, at the south-east end of the Dead Sea, and in the Plains of Shittim, we found growing plentifully on the ground the variety which has been distinguished as *Capparis ægyptiaca*, and the trailing branches were often three or four feet long.

The Caper is always pendent on the rocks or trailing on the ground. The stem has short recurved spines below the junction of each leaf. The leaves are oval, of a glossy green, and in the warmer situations are evergreen. The blossom is very open, loose, and white, with many long lilac anthers. The fruit is a large pod, about the size and shape of a walnut. It is the bud of the flower that is pickled and exported as a sauce.

Professor Royle, referring to Pliny, states, that the Caper has always been supposed to possess cleansing properties, especially in cutaneous disorders.

Several authors, as quoted by Celsius, consider the word translated 'desire' in Eccl. xii. 5 ("The grasshopper shall be a burden, and desire shall fail") to mean 'the Caper,' *i.e.*, that the Caper, which was eaten before meals as a provocative to appetite, shall fail to stimulate the declining powers of the aged, for man goeth to his long home. The word does not elsewhere occur.

Ladanum.—There are two words in Hebrew which are translated 'myrrh,' *môr* and *lôt*. About the first there is no question [see Myrrh]. *Lôt* is admitted by almost all critics to mean *Ladanum*, the gum or exudation of the *Cistus*, or Rock-rose, of which there are several species abundant in Palestine. The word only occurs twice in the Old Testament, in the Book of Genesis: "Behold, a company of Ishmeelites came from Gilead with their camels bearing spicery and balm and myrrh (*lôt*), going to carry it down to Egypt" (ch. xxxvii. 25); "Carry down the man a present, a little balm, and a little honey, spices, and myrrh (*lôt*), nuts, and almonds" (ch. xliii. 11). It is evident *lôt* cannot be myrrh, which is not an indigenous product of Gilead or Pales-

tine. It is identical with the Arabic *ladan*, whence the Latin and English names of the gum, *Ladanum*, obtained from the Cistus.

The Cistus has been supposed to be the 'Rose of Sharon' of Cant. ii. 1, though it is scarcely characteristic of the plain, being rather the plant of the hills. The *Cistineæ* are well known in our gardens, and there are several species of the genus *Helianthemum*, belonging to this order, wild in England, though much inferior in size and beauty to those of Palestine.

LADANUM. (*Cistus creticus.*)

Mount Carmel especially abounds in the Cistus, which in April covers some of the barer parts of the mountain with a glow not inferior to that of the Scottish heather. We obtained three species. One of them, *Cistus villosus*, is very beautiful, blooming freely, with a large loose pink blossom about twice the size of a wild rose. Another, *C. salvifolius*, is also very plentiful on Carmel, with whitish yellow bloom. Both species seem often to vary into pure white. *C. creticus* is also a very common species throughout the Levant, and has a large rose-coloured flower. None of them exceed a foot or two in height. From all these Ladanum is obtained; and even

in our colder climate, the leaves of the different species of Cistus are clammy with this exudation in sunny weather.

Ladanum is to be purchased in the Syrian bazaars, but we could not ascertain that it is now gathered in Palestine, though it is collected in the Greek islands. It is said by Herodotus to have been first discovered by Arab shepherds, who noticed it sticking to the beards of their goats when they had been feeding on the Cistus. Consequently, the instrument with which it is collected is on the principle of a goat's beard ; and an old traveller, 160 years ago, gives an interesting account of the manner in which the gum was gathered in the Island of Candia, together with a figure of the tool—a sort of rake with a fringe of long strips of stuff, which is swept over the plant while the sun is hot. The thongs are afterwards carefully scraped of the gummy matter adhering to them. He adds, that a man will gather more than two pounds weight in a day (*Tournefort's Voyages*, vol. i. pp. 79–81). A similar method is employed by the shepherds to collect gum tragacanth.

There is reason to believe that the collecting of these gums has become an object of much less importance within the last century. The demand in Europe has much diminished from their declining repute in the modern Pharmacopœia. Gum ladanum, though with a very much more agreeable odour than opium, has the same qualities in a slight degree, whence the name of laudanum has been applied to the decoction of opium.

Leeks. Heb. *khatzir* (*Allium porrum*).—Mentioned, in Numb. xi. 5, among the vegetables which the Israelites had enjoyed in Egypt, and for which they longed in the wilderness. The word '*khatzir*' occurs repeatedly elsewhere in the Old Testament, and is rendered in other passages 'herbs' or 'grass'—no doubt, rightly—as it is derived from a root signifying to be green. But all the old versions and commentators agree in taking it to stand for 'leeks' in the passage in Numbers. The grass-like leaf and form, and the green colour of the Leek, render the name '*khatzir*' appropriate enough.

The Leek was a very favourite vegetable of the Egyptians—indeed it was reverenced by them as sacred; and they are ridiculed by a Roman satirist for growing their gods in their gardens. It is still largely cultivated both in Egypt and Palestine and is eaten raw with bread.

Some modern writers, adhering to the general signification of '*hhatzir*,' 'grass,' have suggested that a species of Lucerne largely used as salad (*Trigonella fœnum-græcum*) is intended. No doubt this is eaten, as it is difficult to say what plants, not poisonous or acrid, are not eaten in the varied salads of Orientals; but the conjecture seems unnecessary.

LENTILES. Heb. *'adashim* (*Ervum lens*).—The red pottage for which Esau was induced to sell his birth-

LENTILES.

right was made of lentiles: "Jacob gave Esau bread and pottage of lentiles" (Gen. xxv. 34). We find lentiles incidentally mentioned in three other passages. "Beans, and lentiles, and parched pulse" were among the supplies brought to David in Gilead when he fled from Absalom (2 Sam. xvii. 28). "The Philistines were gathered together into a troop, where was a piece of ground full of lentiles" (xxiii. 11). They were among the ingredients of the typical bread the prophet was

commanded to make: "Take thou also unto thee . . . . beans and lentiles . . . . and make thee bread thereof" (Ez. iv. 9).

The Lentil (*Errum lens*) is a species of Vetch, very like some of our wild sorts, especially the Tine-tare, and is much cultivated on the poorer soils in Palestine. It is often grown in olive-yards and on bare hill-sides. In some parts of the country it is the predominant crop, but the yield is very scanty. The Arabic name *'Adas* is exactly the same as the Hebrew. There are several varieties recognised, and the Red Lentil is considered the best. We have eaten it mixed with meal for bread; but it is more generally used as a pottage, or cooked as the Spaniards cook haricot beans, stewed with oil, and flavoured with red pepper. It is by no means an unsavoury dish.

The Lentil harvest is later than the Wheat. The plants are cut and threshed out like corn.

Lily.—The Heb. word *shûsan*, thus translated, occurs in the following passages: "I am the rose of Sharon, and the lily of the valleys. As the lily among thorns, so is my love among the daughters" (Cant. ii. 1, 2). "My beloved . . . feedeth among the lilies" (id. ii. 16). "Thy two breasts are like two young roes that are twins which feed among the lilies" (id. iv. 5). "His lips like lilies, dropping sweet smelling myrrh" (id. v. 13). "My beloved is gone down into his garden . . . . to gather lilies. . . . He feedeth among the lilies" (id. vi. 2, 3). "Thy belly is like a heap of wheat set about with lilies" (id. vii. 2). "He shall grow as the lily" (Hos. xiv. 5). The Lily was also one of the devices round the brim of the brazen sea in the Temple of Solomon: "The brim thereof was wrought like the brim of a cup, with flowers of lilies" (1 Kings vii. 26; 2 Chron. iv. 5).

In the New Testament the Lily (*κρίνον*) is pointed out for our admiration by our Lord: "Why take ye thought for raiment? Consider the lilies of the field, how they grow; they toil not, neither do they spin: and yet I say unto you, That even Solomon in all his glory was not arrayed like one of these" (Matt. vi. 28, 29; Luke xii. 27).

There has been much discussion as to what particular flower, if any, is designated by these names. The Arabs have the same word '*Susan*,' which I have found the peasantry apply to any brilliantly-coloured flower at all

resembling a Lily, as to the tulip, anemone, ranunculus. We may fairly infer from our Lord's allusion that this *Lily* was abundant near the Plain of Gennesaret, where the sermon on the Mount was delivered, and that it was brilliantly coloured, for it surpassed the robes of Solomon in glory. That it was red we judge from the comparison with the lips of the beloved. Rapid growth seems to be implied by the expression in Hosea; and in the Song of Solomon it is spoken of as flourishing in valleys, as springing up among the thorny shrubs, as growing in the plains where the gazelles (roes) pasture, and as cultivated in gardens. Now, though many plants of the Lily tribe flourish in Palestine, none of them give a predominant character to the flora. They are generally few and far between. The White Lily we do not know as a native. The only true Lily I have noticed is *Lilium chalcedonicum*, the Red Turk's-cap Lily of our gardens, and it is not common.

There are, however, many other plants which would, in popular language, be called 'lilies.' The Irises are many in species, and some of them of wondrous beauty. Pre-eminent is one which grows in Tabor, through Galilee, and in the marshes of the Huleh, and which has been mentioned in glowing terms by Dr. Thomson. The species is undetermined, but the blossom is dark purple and white and therefore does not meet the requirements of the Lily. There are many other species of Iris, among them the little *Iris caucasicum*, in the bare highlands of the south; *Iris sisyrhinchium*, and four or five others, in Galilee. The beautiful *Gladiolus byzantinus*, of many shades of purple and dark red, is very abundant in the corn fields and olive yards throughout the whole country. The Narcissus is not common, though at least one species (*N. tazetta*) is found, and on the tops of the mountains the lovely blue *Ixclirion montanum*. The Asphodels are very abundant on all the plains, but they have no beauty by which to claim a place among the Lilies. There are also many Squills—*Scilla autumnalis*, and others; the Grape-hyacinth (*Muscari racemosum*), and another species; some beautiful Fritillaries (*Fritillaria persica*) on the plains, and another (new?) species among the snows of Hermon and Lebanon. The Star of Bethlehem has been already mentioned [see DOVE'S DUNG]; but none of these can claim

to be the *Shûshan*. The Tulip is more probable than any which have been named, from its locality, colour, and abundance. The prevailing species is *Tulipa gesneriana*, of a brilliant red, which grows profusely scattered over many parts of the country, both on the Plain of Gennesaret and on the hill-sides, pushing forth from crevices among the stones. Yet none of these bulbs give a general hue to the ground carpet.

ANEMONE CORONARIA.

The true floral glories of Palestine are the Pheasant's Eye, the Ranunculus, and the Anemone, but especially the latter. The *Anemone coronaria*, well known in our gardens, of various colours, lilac, white, and red, but most generally a brilliant scarlet, is the flower which, as the most gorgeously painted, the most conspicuous in spring, and the most universally spread of all the floral treasures of the Holy Land, I should feel inclined to fix on as 'the lily of the field' of our Lord's discourse.

It is found everywhere, on all soils, and in all situations. It covers the Mount of Olives, it carpets all the plains, nowhere does it attain a more luxurious growth than by the shores of the Lake of Galilee. In the olive yards of Ephraim, on the bare hills of Nazareth alike, there is no part of the country where it does not shine. Certainly if, in the wondrous richness of bloom which characterizes the land of Israel in spring, any one plant can claim pre-eminence, it is the Anemone, the most natural flower for our Lord to pluck and seize upon as an illustration, whether walking in the fields, or sitting on the hill-side. The Anemone also meets every requirement of the allusions in Canticles, and is one of the flowers called *Susan* by the Arabs.

Almost a rival of the Anemone in brilliancy, though less common and smaller, is the scarlet *Ranunculus asiaticus*, and, in the open fields and plains of the Jordan, the large Pheasant's Eye (*Adonis palestina*).

The White Water Lily (*Nymphæa alba*), and the Yellow Water Lily (*Nuphar lutea*), are both abundant in the marshes of the Upper Jordan, but have no connection with the Lily of Scripture. Still less can we admit the claim of the purple flowers of the wild Artichoke, which have been advanced. However beautiful when in blossom, it is a prickly thistle, and probably alluded to as such; nor could it ever have been recognised as a Lily. On the whole, I believe that if we are to assign the glory of the Lily to any one flower, the claims of the scarlet Anemone are pre-eminent.

Linen. Fine Linen.—Three words commonly represent 'linen' in the Hebrew, besides others which only occur once or twice. One of them, '*sêsh*,' 'fine linen, was by some supposed to be 'silk.' '*Bâd*' is always rendered 'linen,' and '*butz*,' which occurs very frequently, 'fine linen,' as is its equivalent βύσσος in the New Testament. Some writers have supposed that cotton is intended. But we have no proof that cotton was known to the Egyptians at that early period, nor is it found in the mummy cloths. Still less ground is there for the conjecture that silk was then known so far west. All the words most probably apply to the produce of flax of different qualities. [See Cotton and Flax.]

Mallows, Heb. *malluach*, occurs only once, where Job, describing the most abject and miserable of the

people, says: "Who cut up mallows by the bushes, and juniper roots for their meat" (Job xxx. 4). The word has reference, if we may judge from its derivation, either to some plant growing in salt places, or of a salt taste. Some, with the translators of our Bible, understand the Mallow, *Malva*, of which there are many species, and which is used as a potherb by the poor.

Mr. Houghton (in *Smith's Dictionary of the Bible*) refers to a statement of a traveller, who, in going from Aleppo to Jerusalem in 1600, says: "We saw many poor people gathering mallows and three-leaved grass (clover), and asked them what they did with it; and they answered that it was all their food, and they did eate it. Then we took pity on them and gave them bread, which they received very joyfully, and blessed God that there was bread in the world, for they had not seen bread the space of many months."

Another plant suggested is the Jews' Mallow (*Corchorus trilocularis*), which we found common on the salt plains near Jericho. But the best authorities are in favour of a species of Sea Purslane (*Atriplex halimus*), which grows abundantly on the shores of the Mediterranean, in salt marshes, and also on the shores of the Dead Sea still more luxuriantly. We found thickets of it of considerable extent on the west side of the sea, and it exclusively supplied us with fuel for many days. It grows there to the height of ten feet—more than double its size on the Mediterranean. It forms a dense mass of thin twigs without thorns, has very minute purple flowers close to the stem, and small, thick, sour-tasting leaves, which could be eaten, as is the *Atriplex hortensis*, or Garden Orache, but it would be very miserable food.

MANDRAKES. Heb. *dudâim, i.e.*, love-plants.—The Mandrake grew both in Mesopotamia and Palestine, as we learn from the passages where it is mentioned: "Reuben went in the days of wheat harvest, and found mandrakes in the field, and brought them unto his mother Leah. Then Rachel said to Leah, Give me, I pray thee, of thy son's mandrakes" (Gen. xxx. 14). "The mandrakes give a smell, and at our gates are all manner of pleasant fruits" (Cant. vii. 13).

The Mandrake (*Mandragora officinalis*) is of the family *Solanaceæ* (to which the Potato belongs), and is a plant of very peculiar appearance. It sends up in early spring

a broad disk of leaves, lying flat on the ground, somewhat like those of the Primrose, but more than double their size, being a foot in length and four inches wide. In the centre of these come out the blossoms singly, some with a stalk two or three inches long, some with scarcely any stem. They are cup-shaped, of a rich purple colour. The fruit is of the size of a large plum, quite round, yellow, and full of soft pulp. It has a peculiar,

MANDRAKE. (*Mandragora officinalis.*)

but decidedly not unpleasant, smell, and a pleasant, sweet taste. It is said to be a soporific, but I have often eaten it without feeling any somnolent effects. The root is a long tap, frequently forked.

The Mandrake has been the subject of many strange superstitions. It was said that it resembled the shape of a man, and that it shrieked and groaned when dug up; that the usual mode of procuring it was by tying a dog to the plant, whose struggles tore it up, but that the dog was killed by the shrieks!

The Mandrake is universally distributed in all parts of Palestine, and its fruit is much valued by the natives, who still hold to the belief, as old as the time of Rachel, that when eaten it ensures conception. It is a very striking-looking plant, and at once attracts attention, from the size of its leaves and the unusual appearance of its blossom. We found it in flower at Christmas in warm situations, and gathered the fruit in April and May. Wheat harvest is, therefore, the period of its ripening generally.

There have been objections raised on the passage in Canticles, that the smell of the Mandrake is unpleasant, but this is not the case to most persons, and the Orientals maintain that in matters of perfume the Franghi (Westerns) are naturally deficient, and have bad noses. Certainly, smells which pass for indifferent in the East, are intolerable to an European, while the Oriental, even of the poorest, will lavish money on scents which to us are pungent or sickly. The Mandrake, however, varies much according to the climate where it is grown.

Melons (Heb. *abattichim*) are only mentioned once, in Numb. xi. 5, among the good things of Egypt, which the children of Israel remembered and regretted in the wilderness. No refreshment is more grateful under the burning sun of the desert than a slice of melon; and well might the people in the wilderness long for the cooling luxury.

There are two very distinct fruits of the Cucumber family included under the name Melon — the Water Melon (*Cucurbita citrullus*), and the Flesh Melon (*Cucumis melo*). Both are very largely cultivated in Palestine and Egypt, and large quantities of water melons are exported from Jaffa. In Egypt the Melon forms no inconsiderable item in the food of the poor. In warm climates the Flesh Melon grows to a much greater size than in our hotbeds, but from carelessness in the cultivation is much inferior in flavour. The Water Melon, which is grown more extensively than the other, attains an enormous size, often exceeding thirty pounds in weight. The interior is solid, the flesh of a pink hue interspersed with black seeds. It is very cold to the taste, watery, and without much flavour, and serves for drink as well as food. There is a succession of fruit from May to November in Palestine.

MILLET, Heb. *dôchan*, is only once mentioned among the many ingredients which Ezekiel was commanded to take and mingle for his bread: "Take thou also unto thee wheat, and barley, and beans, and lentiles, and millet,

PANICUM MILIACEUM

and fitches, and put them in one vessel, and make thee bread thereof" (Ez. iv. 9), where it is evident that every grain is enumerated, which was ordinarily used for bread.

There are two species of Millet commonly cultivated in the East: *Panicum miliaceum* of botanists, called at

this day *Dukhan*, its Hebrew name, by the Arabs, and *Sorghum vulgare*, known through Western Asia and North Africa as *Dhourrha*. Both of them are cultivated grasses, nearly allied, and both are grown in the Holy Land for bread. The seeds are very small, and are only used in this country for birds. The poorer classes often eat Millet uncooked in the East, and I have seen the

SORGHUM VULGARE.

pilgrims on the hadj, while going to Mecca, contentedly make their evening meal of a few stems of Millet, uncooked, without any preparation. Sweet cakes are often made of the meal of Millet. The stem of both the Sorghum and Panicum is very tall, and the latter is chiefly preferred in Palestine as fodder for cattle, being less woody than the Sorghum. Sometimes it is cut green for the horses, who are also very fond of the straw,

which is much more tender than the barley straw on which they are commonly fed.

MINT, Gr. Ἡδύοσμον, occurs only in the New Testament, as one of the insignificant garden herbs, of which the Jews were scrupulous in paying the tithe, while they overlooked the moral law: "Woe unto you, Pharisees! for ye tithe mint and rue and all manner of herbs, and

MENTHA SYLVESTRIS.

pass over judgment and the love of God: these ought ye to have done, and not to leave the other undone" (Luke xi. 42); so Matt. xxiii. 23. Mint was commonly used with their meat by the Jews, and is said to be one of the bitter herbs eaten with the paschal lamb. There are various species, wild and cultivated, in Palestine. The common Wild Mint of the country is *Mentha sylvestris*, which grows on all the hills, and is much larger than

our Garden Mint (*Mentha sativa*). The mints are akin to the salvias, and belong to the Labiate family of plants.

MUSTARD.—Mustard (Gr. σίναπι) does not occur in the Old Testament. In the New Testament it is three times mentioned by our Lord, on each occasion with reference to the smallness of its seed. In the Parable of the Mustard Seed, the growth of the kingdom of heaven upon earth is compared to that of the Mustard: "The kingdom of heaven is like to a grain of mustard seed, which a man took, and sowed in his field: which indeed is the least of all seeds: but when it is grown, it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof" (Matt. xiii. 31, 32). So also Mark iv. 31, 32; Luke xiii. 18, 19. Again, our Lord in reproving His disciples for their unbelief, tells them, "If ye have faith as a grain of mustard seed, ye shall say unto this mountain, Remove hence to yonder place; and it shall remove; and nothing shall be impossible unto you" (Matt. xvii. 20). On a subsequent occasion, when asked by His disciples to increase their faith, He used a similar expression: "If ye had faith as a grain of mustard seed, ye might say unto this sycamine tree, Be thou plucked up by the root, and be thou planted in the sea; and it should obey you" (Luke xvii. 6). From these passages it is evident that 'small as a grain of mustard seed' was a familiar and proverbial expression, of which our Lord made use, though the phrase 'the least of all seeds' is hyperbolical, there being many other seeds, like the poppy or the rue, which are smaller. "The difficulty is not worth making. In popular teaching the Lord adhered to the popular language."

The Common Mustard of Palestine is *Sinapis nigra*, of the order *Cruciferæ*, the Black Mustard, which is found abundantly in a wild state, and is also cultivated in the gardens for its seed. It is the same as our own Mustard, but grows especially in the richer soils of the Jordan valley to a much greater size than in this country. We noticed its great height on the banks of the Jordan, as have several other travellers; and Dr. Thomson remarks that in the Plain of Acre he has seen it as tall as a horse and its rider. We were not in the maritime plain late enough in the year to observe it there, but it is said in autumn to gild the whole plain with its yellow blossom,

as the *Sinapis arvensis* covers our corn fields. The plant is too well known to require description.

A difficulty has been raised against any *Sinapis* being the mustard of the parable, because it is called 'a tree' and 'a great tree,' in the branches of which the fowls of the air lodge. But, in the first place, we must remember that the expression is a proverbial Oriental figure, in which literal exactitude is not to be looked for; and at the same time that the Mustard is called 'a tree' (*δένδρον*), it is expressly stated to be a 'herb,' a 'garden herb' (*λάχανον*); and in comparison with the other herbs of the garden which it so much surpasses in size, it is alone called a 'tree,' though with respect to trees properly so termed it could not be called one at all. Again, we are told that "the birds of the air come and lodge in the branches thereof." This does not mean, nor is there the slightest ground for supposing it to mean, that the birds build their nests in it, but simply that they lodge or perch there, and settle in the branches of it; as the goldfinches and linnets do in flocks, for the sake of the seed, of which they are very fond. The Greek word merely means 'to settle' or 'rest upon' for a longer or shorter time.

Much ingenuity has been expended in order to prove that the Mustard is not a *Sinapis* at all, but a tree of a totally different order (*Salvadora persica*), called by the Arabs *Khardal*, or Mustard tree, and which is a true tree. But Dr. Hooker and Mr. Houghton have effectually disposed of its pretensions. It was first suggested by Irby and Mangles, who found it growing in the Plain of Safieh, at the south-east end of the Dead Sea, and observed that its seeds were pungent like mustard, and were used as such by the Arabs. The seed is much larger than that of the Mustard. The tree is about twenty-five feet high, and, so far, would meet the requirements of the expression in the Gospel.

It has further been stated to grow all along the course of the Jordan and in the Plain of Gennesaret; and therefore to have been likely to suggest itself to our Lord. But there is no reason to believe that at any time it grew by the Sea of Galilee, and very strong grounds for doubting that it could flourish there at all. We met with it where Irby and Mangles first discovered it, at the south-east end of the Dead Sea, and at Engedi, where Dr. Hooker

has recorded it; but, though we made careful search, we never saw it farther north. It is in fact one of the many tropical plants whose northern limit is in these sultry nooks by the Dead Sea, like the *Osher*, and which never spread farther north. The whole flora of Safieh and Engedi is very different from anything about the Sea of Galilee, and none of these peculiar plants extend farther up the Jordan valley than Jericho and Shittim, because from those points the depression of the valley becomes rapidly more elevated. It would be most improbable that our Lord should three times use as an illustration an almost foreign plant, which did not grow where He was, and which not one in a thousand of His hearers could ever have seen. Moreover, the *Salvadora persica* could never be termed 'a herb.'

The whole discussion has in reality been founded on the inaccurate statement of a former traveller, that he had seen the *Salvadora* all along the banks of the Jordan, by the Lake of Tiberias, and at Damascus.

Nettles.—Two Hebrew words are translated 'nettles.' (1.) *Kimmosh.* In the prophecy concerning Edom: "Thorns shall come up in her palaces, nettles and brambles in the fortresses thereof" (Isa. xxxiv. 13). And of Israel: "Egypt shall gather them up, Memphis shall bury them: the pleasant places for their silver, nettles shall possess them: thorns shall be in their tabernacles' (Hos. ix. 6). Another form of the same word occurs in Prov. xxiv. 30, 31, where it is translated 'thorns': "I went by the field of the slothful . . . and, lo, it was all grown over with thorns (*kimmeshonim*), and nettles (*charûlim*) had covered the face thereof."

All commentators agree that this is the Sting-nettle (*Urtica*), of which there are several species in Palestine. The most common is *Urtica pilulifera*, a tall and vigorous plant, often six feet high, the sting of which is much more severe and irritating than that of our common Nettle. It particularly affects old ruins, as near Tell Hûm (Capernaum?), Beisan (Bethshean), the ruined Khan by the bridge over the Jordan, and forms a most annoying obstacle to the employer who wishes to investigate the old remains.

(2.) Heb. *charûl.* Of the meaning of this word there is more doubt. It occurs in the passage from the Proverbs just quoted, 'nettles.' Also when Job, speaking

of the outcasts by whom he was had in derision, says: "Among the bushes they brayed, under the nettles (*charûl*) they were gathered together" (ch. xxx. 7). And in Zeph. ii. 9: "Moab shall be as Sodom, and the children of Ammon as Gomorrah, even the breeding of nettles, and saltpits, and a perpetual desolation."

The *charûl* would appear to be different from the ordinary Nettle, since in Prov. xxiv. 31, it is mentioned along with it. It cannot be a shrub, like the *Zizyphus*, or Thorn tree, or the *Paliurus aculeatus*, or Christ Thorn, because it is evidently spoken of by Solomon as a plant of quick growth in the corn fields. It must have been of some size, from the passage in Job, where the outcasts shelter under it. I am inclined to believe that it designates the Prickly Acanthus (*Acanthus spinosus*), a very common and troublesome weed in the Plains of Palestine, and equally abundant among ruins, and which has not been identified with any words translated 'thorns' or 'briers.' We have often seen it in the Plain of Esdraelon choking the corn, and reaching the height of six feet. Its sting is most irritating and unpleasant, and well supports the derivation of the Hebrew word, "that which burns." [See BRAMBLE, *ad fin.*]

ONIONS (Heb. *betzalim*) are enumerated among the vegetables of Egypt, after which the Israelites yearned in the wilderness, when they fell a-lusting: "We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlick" (Numb. xi. 5). Herodotus mentions the importance of Onions as an article of food in Egypt. Nor are they less cultivated now in every garden plot under the palm-trees round the villages of the Nile. They are equally indispensable in the cookery of Syria, and are grown everywhere, though not reaching the size of those in Egypt, which equal the Portugal Onion in bulk.

The Onion (*Allium cepa*) is much used by Orientals when on a journey, in its raw state, and is considered an excellent preservative against thirst. We may note that all the vegetables named by the people in their murmuring are those after which they would most crave when oppressed by the scorching heat of the desert, as being the most cooling and grateful in a dry and thirsty land.

PANNAG.—The English version does not attempt to render this word, which occurs only in Ez. xxvii. 17, where, recounting the merchandise of Tyre, the prophet says: "Judah, and the land of Israel, they were thy merchants: they traded in thy market wheat of Minnith, and *pannag*, and honey, and oil, and balm." Wheat of Minnith, a town near Rabbath Ammon, is the wheat of the Belka, now so large an item in the trade of Acre, and Pannag therefore is probably some indigenous product. The only light we can obtain on the passage is cast by the parallel account in Gen. xliii. 11, of the precious commodities sent from Canaan to Egypt by Jacob, where tragacanth and ladanum ('spices' and 'myrrh') occur. Possibly Pannag may represent some spice of the country. Others have suggested Panax, or Ginseng, an Indian drug. But this scarcely suits the context. Others again have proposed to read Millet, an important product of Palestine, of which bread was made. This is the rendering of the Syriac version.

PULSE.—In Dan. i. 12, 16 we read: "Let them give us pulse to eat, and water to drink." "Thus Melzar took away the portion of their meat . . . . and gave them pulse." The word means simply 'seeds,' not necessarily what we understand by Pulse, as peas and other leguminous vegetables. It was simply a plain vegetable diet that Daniel and his friends requested. The word 'Pulse' occurs also in our version of 2 Sam. xvii. 28, "Brought lentiles and parched pulse," where it is not in the original, but is supplied by the translators, parched corn having been supplied just before. They are probably correct, as parched peas are a favourite diet in the East. Pulse or peas of many kinds are, and always were, cultivated in Palestine.

PAPER-REEDS. [See BULRUSH.]

PRICKS. [See BRAMBLE.]

REED. [See BULRUSH.]

ROSE. ROSE OF SHARON. Heb. *chabatzeleth*.—"I am the rose of Sharon and the lily of the valleys" (Cant. ii. 1). "The desert shall rejoice, and blossom as the rose" (Isa. xxxv. 1). The word is not met with elsewhere in the Scriptures. From its derivation it is supposed to point to some bulbous plant, and very probably to the Sweet-scented Narcissus (*Narcissus tazetta*), a native of Palestine, noticed by Hasselquist on the Plain of Sharon, and by

ourselves on the hills. Others have suggested the Crocus, of which there are many species very common; but they are deficient in perfume, and there is no bulb more fragrant than the Narcissus; it is, besides, one of which the Orientals are passionately fond. While it is in flower it is to be seen in all the bazaars, and the men as well as the women at that season always carry two or three blossoms, at which they are continually smelling.

Dr. Thomson has suggested 'the Mallow,' which is common enough on all the plains in summer, but it can scarcely lay claim to such a poetic honour. If any plant of that character were intended, the Hollyhock, which grows throughout the country (*Althæa acaulis*, *A. rosea*, and *A. cretica*), and all the species of which are noble-looking flowers, must be preferred. On the whole, the Narcissus appears the best interpretation.

The Rose of Sharon, properly so called, is a Cistus. [See LADANUM.]

The Rose is supposed to be referred to in the Apocrypha, where Wisdom says: "I was exalted like a palm tree in Engaddi, and as a rose plant in Jericho" (Ecclus. xxiv. 14). "Bud forth as a rose growing by the brook of the field" (ch. xxxix. 13). "He was . . . . as the flower of roses in the spring of the year, as lilies by the rivers of waters" (ch. l. 8). From the locality of Jericho, and the situation by the waters, this Rose is most probably the Oleander, the *Rhododendron*, or Tree-rose of the Greeks, one of the most beautiful and attractive plants of Palestine, which abounds in all the warmer parts of the country by the side of pools and streams, and flourishes especially at Jericho, where I have not seen our Rose. [See WILLOW.]

The so-called *Rose of Jericho* has nothing to do with the scriptural allusions. It is a small ligneous cruciferous plant (*Anastatica hierochuntina*), very inconspicuous, looking like some withered twig, which grows in the sand in the hot barren plains round the Dead Sea. It derives its botanical name from its singular property of opening its minute flowers when plunged into water months after it has been gathered (*Anastatica*, *i.e.*, Resurrection-flower, *hierochuntina*, *i.e.*, of Jericho). It is sought after as a relic by pilgrims. It is also found in the sands of Egypt, unless the species there be different.

Rue.—This plant is mentioned as a garden herb in Luke xi. 42: "Woe unto you, Pharisees! for ye tithe mint and rue and all manner of herbs, and pass over judgment and the love of God." In the parallel passage in St. Matt. xxiii. 23 rue is omitted, and anise and cummin inserted. Rue (*πήγανον*) is a well known genus of herbs (*Rutaceæ*), some of which are cultivated in our gardens. We collected four species wild in Palestine.

RUE.

Ruta graveolens is cultivated. The most common wild sort was *Ruta bracteosa*, a handsome species. *Ruta buxbaumii*, growing in moist meadows, is also a showy plant. Rue was formerly considered of great value as a disinfectant, and was consequently scattered in courts of justice to protect the officials from the terrible gaol fever. The custom has still continued in capital cases when sentence is passed.

RUSHES. [See BULRUSH.]

RYE. Heb. *cussemeth.*—The Hebrew word occurs in the following passages: "The wheat and the rie (*cussemeth*) were not smitten: for they were not grown up" (Ex. ix. 32). "Doth he not . . . . cast in the principal wheat and the appointed barley and the rie (*cussemeth*) [marg. spelt] in their place?" (Isa. xxviii. 25) "Take thou also unto thee wheat, and barley, and beans, and lentiles, and millet, and fitches (*cussemeth*) [marg. spelt]" (Ez. iv. 9). There is little doubt of the correctness of the marginal rendering, 'spelt,' the Arabic name of which (*chirsanat*) is closely allied to the Hebrew. Rye is not an Egyptian or Syrian grain, but rather a northern plant. If grown there at all, it is in very small quantities, while Spelt is one of the ordinary cereals. Spelt, Gr. ζέα, known by botanists as *Triticum spelta*, is closely allied to Wheat, which it much resembles. The sheath is coarser and rougher, and the beard long. It is of less value than Wheat, and the flour is generally mixed with that of Wheat. The expression in Isa. (b. c.), the barley and the *cussemeth* in their place [or marg. border], is supposed to imply that it was sown after the Wheat in the borders or headlands of the fields.

SAFFRON.—Solomon, in describing a garden stowed with all that was most beautiful and sweet, mentions among its other products 'spikenard and saffron' (Cant. iv. 14). This is the only passage in which the word occurs in the Old Testament, but there can be no doubt of its meaning, as the Arabic name of the Saffron (*Kurkum*) is similar to the Hebrew *karkôm*, and denotes the *Crocus sativus*, or Saffron Crocus, a well known bulb of the order *Iridaceæ*.

Many species of Crocus abound in Palestine, and the Saffron has always been in high repute as a perfume. In England Saffron is obtained exclusively from the *Crocus sativus*, with a blue flower, for which the town of Saffron Walden is celebrated. But in Syria other species are equally esteemed for the purpose, and the stigmas of all the blue sorts are collected indiscriminately. The preparation of Saffron is very simple. The women and children gather the pistil and stigma from the centre of each flower. These are dried in the sun and then pounded, when they are pounded Saffron, or are pressed into small tablets before drying, when they form the saffron cake of the bazaars of the East. We found Saffron

a very useful condiment in travelling cookery, a very small pinch of it giving not only a rich yellow colour,

SAFFRON. (*Crocus sativus.*)

but an agreeable flavour to a dish of rice, or to an insipid stew. The word 'saffron' is simply the Arabic *zafran*, *i.e.*, yellow. The best Saffron is of an orange-red colour.

Soap.—Soap, a vegetable alkaline, is called in Hebrew *borith*: "For though thou wash thee with nitre (*nether*, a mineral alkali), and take thee much sope, yet thine iniquity is marked before me" (Jer. ii. 22). "But who may abide the day of his coming? and who shall stand when he appeareth? for he is like a refiner's fire, and like fullers' sope" (Mal. iii. 2).

Potash has been procured in Palestine from the very earliest times from the abundance of alkaline plants which flourish both on the salt marshes near the coast, and on the shores of the Dead Sea, especially from the various species of *Salicornia* and *Salsola*: and an active trade in potash, procured from these vegetables, in the same manner as the kelp used to be burnt in the highlands of Scotland, is still carried on from the ports of the Holy Land.

SALSOLA KALI.

The first invention of glass by the Phœnicians on the banks of the river Belus is connected with the alkali still supplied in some quantity in that very neighbourhood, and the Soap used in Greece and Egypt is chiefly exported from Acre and Jaffa. For ordinary use, a soft soap, procured by boiling olive oil with potash, is employed, for oil is there very much cheaper than tallow.

The Arabs of the tribes bordering on the Dead Sea annually cut down the crops of *Salsola* and *Salicornia* and burn them for alkali for exportation; and an inferior quality is supplied by the salt marshes near Jaffa and Acre. The most important potash-yielding plants of Palestine are the *Salicornia fruticosa*, on the Mediterranean shores, and another species or variety (?) on the shores of the Dead Sea. It has a smooth, glossy, jointed, leafless stem, with great numbers of branchlets, and at a distance has a very brilliant appearance from the mingled red and green colour of its branches. It covers considerable tracts at the south-west of the Dead Sea. Equally valuable is the *Salsola kali*, which is quite as abundant, and another *Salsola*, apparently a new species, which is the predominant vegetation about some of the salt marshes on the borders of the Dead Sea.

The *Salsola* is called *Kali*, or *El kali*, by the Arabs, and from this name our familiar word 'Alkali,' with its important application in manufactures and chemistry, is derived. The *Salsola* by the Dead Sea resembles another which covers tracts of many miles in extent in the salt marshes south of the Atlas mountains in North Africa. It is jointed like the *Salicornias*, and at the end of each shoot are numbers of round scale-like leaves, the involucrum of the minute blossom. These have a brownish red hue, which contrasts prettily with the green of the fleshy stem. The main stems are very hard and woody. The use of Soap, probably prepared from oils, appears to be of great antiquity among the Arabs.

Sodom, Vine of.—The expression only occurs in Deuteronomy: "Their vine is of the vine of Sodom, and of the fields of Gomorrah: their grapes are grapes of gall, their clusters are bitter" (xxxii. 32). The expression, Vine of Sodom, derives its chief interest from being popularly identified with the apples of Sodom, of which many strange tales have been told, and which are mentioned both by Josephus and by profane classical writers —those

> "Dead Sea fruits that tempt the eye,
> But turn to ashes on the lips."

Observation of the relative abundance, and of the geographical distribution of the plants of the neighbourhood of the Dead Sea, would lead me to the conclusion that

the simile of the Vine of Sodom is taken from the fruit of the Colocynth (*Citrullus colocynthus*), which has long straggling tendrils or runners like the Vine, with a fruit fair to look at, but nauseous beyond description to the taste, and, when fully ripe, merely a quantity of dusty

APPLE OF SODOM. (*Solanum sanctum.*)

powder with the seeds inside its beautiful orange rind. It is, moreover, abundant on those deserted shores, and we did not notice it elsewhere. [See GOURD, WILD.] But this has not been previously suggested, for few, if any, travellers have remained long enough on the spot to examine its botany.

The claims of the *Solanum sodomeum* or *S. sanctum* have been advanced by Hasselquist and others. (This plant has been described under BRAMBLE, 4. *Chedek.*) One

principal objection to the proposed identification is that this *Solanum* is by no means peculiar to the region of the Dead Sea, but is common in most parts of Palestine.

One other plant has been put forward, the claims of which have been generally admitted by recent writers, and which is so singular and interesting a tree that it must not be passed over without notice. It is the *Osher* of the Arabs, *Calotropis procera* of botanists, of the family *Asclepiadaceæ*, and is of an Indian family. Though abundant in Nubia and some parts of Upper Egypt, it only exists on the south-eastern border of Palestine. Hasselquist observed it on the desert plain between Jericho and the Jordan, where it is certainly now extinct. We first met with it at Engedi, where Dr. Robinson found and described it, and afterwards we saw it in great abundance in the Ghor es Safieh, at the south-east end of the Dead Sea, and again in the Plains of Shittim, opposite Jericho, east of Jordan.

The tree does not grow to any great height—from twelve to fifteen feet—and has a light-coloured, very spongy, thick bark, split in all directions like cork, with very large glossy oval leaves, six inches long by four wide. When these are broken they discharge an acrid milky fluid like the Spurge. This is eagerly collected by the Arabs, who consider it a valuable medicine for sterility or impotence. The blossom is large and white, with few petals, and the fruit as large as an apple of average size, of a bright yellow colour, hanging three or four together close to the stem. It bore flower and fruit at the same time. The fruit is soft to the touch, and when ripe easily bursts, disclosing a slender pod running through it, like that of all the Asclepiads, with a row of thin flat seeds lightly attached, and winged with long white silky filaments, of the most exquisite fineness. The Arabs collect this cotton and twist it into matches for their firelocks. The *Osher* supports a very singular orthopterous insect, a very large black and yellow cricket, which we found in some plenty on all the trees, but never elsewhere.

SPELT. [See RYE.]

SPIKENARD, Heb. *nerd*, was imported from India into Palestine at a very early period. Thus Solomon extols its perfume: "While the king sitteth at his table, my spikenard sendeth forth the smell thereof" (Cant. i. 12). "Thy plants are . . . . camphire with spikenard, spike-

nard and saffron, calamus and cinnamon with all trees of frankincense, myrrh and aloes, with all the chief spices" (iv. 13, 14). It was with this precious unguent that Mary anointed the feet of our Lord as He sat at meat in the house of Simon the leper, at Bethany: "Then took Mary a pound of ointment of spikenard, [lit. pure nard, or liquid nard], very costly, and anointed the feet of Jesus, and wiped his feet with her hair: and the house was filled with the odour of the ointment" (John xii. 3). [See also Mark xiv. 3.] How costly the ointment was we may judge by the indignation expressed by Judas and some who stood by, at what they deemed prodigal extravagance; and by the value they set upon it, more than 300 denarii (£12 10*s.*).

Spikenard, or Nard, is exclusively an Indian product, procured from the *Nardostachys jatamansi*, a plant of the order *Valerianaceæ*, growing on the Himalaya mountains in Nepaul and Bhotan. It was well known to the Greeks and Romans, and is mentioned by classical authors as obtained from the hills on the banks of the Ganges. One peculiarity of the plant which is mentioned by old writers aids in its identification, viz. that it has many hairy spikes shooting from one root; while the Arabs describe the stem as being like the tail of an ermine. These shaggy stems are caused by the root leaves shooting up from the ground and surrounding the stalk. It is from this part of the plant that the perfume is procured, and prepared simply by drying it. The Arabs call it *Sunbul Hindi, i.e.* 'The Indian Spike.'

In the Gospel narrative it is called *νάρδος πιστικὴ*. There has been some question about the meaning of the adjective *πιστικὴ*, which our translators have passed over, or expressed the two as one word, 'Spikenard,' noting in the margin the renderings 'pure' or 'liquid.' Πιστικὴ is an unusual word, and, if derived from *πίνω*, 'to drink,' would mean liquid, but if from *πιστὸς*, 'faithful,' would mean 'genuine.' [On the different renderings, see *Alford, Greek Testament in loc.*] Whichever be the meaning, it was probably a technical term used only by dealers in perfumes, and therefore does not elsewhere occur. We know that the Romans used Nard in a liquid state for anointing the hair.

Sweet-Cane. Heb. *keneh.* Isa. xliii. 24; Jer. vi. 20. Elsewhere translated Calamus.—It must not be con-

founded with the Sugar-cane, unknown to the Jews at the period of the prophets, but which in the times of the Saracens and Crusaders was introduced and cultivated in the Lower Jordan valley. [See CALAMUS.]

TARES. (*Lolium temulentum.*)

TARES, Gr. ζιζάνια, only occurs in the Parable of the Wheat and the Tares (Matt. xiii. 24–30). It is to be observed that the wheat and the tares spring from distinct seeds: "The enemy came and sowed tares among the wheat:" and that it is only when the wheat is in ear that the difference is recognised: "when the blade

was sprung up and brought forth fruit, then appeared the tares also."

The Tares (*ζιζάνια*) are the same as the Arabic *zawân*, from which the Greek name is derived, the *Lolium temulentum*, or Bearded Darnel, a grass weed not very common in England, but of very wide distribution, and abundant in all the countries bordering on the Mediterranean. It is a kind of rye-grass, and is the only species of the grass family the seeds of which are poisonous. The derivation of *zawân* is from *zân*, 'vomiting,' the effect of eating darnel being to produce violent nausea, convulsions, and diarrhœa, which frequently ends in death.

The plant, having a broader leaf than most wild grasses, is entirely like wheat until the ear appears. It is carefully eradicated wherever possible, in the corn fields; and Dean Stanley, as well as other travellers, has observed the women and children employed in picking out the tall green stalks, still called by the Arabs *zawân*, in the great corn fields of Samaria. Though we did not observe the process ourselves, yet we many times saw the women carefully hand-weeding the wheat fields. But this was at a period of the year too early for the tares to be recognised.

The natives have still the same superstition as the Talmudists of old, that the darnel and the wheat spring from the same seed; that *zawân*, darnel, is merely a degenerate wheat, and that in very wet seasons the wheat itself turns to tares; the fact being that in such seasons the wheat perishes, while the rain is favourable to the development of the darnel. This view, contrary as it is to the facts of nature, has been adopted by some commentators, though in direct opposition to the statement of the parable, that the *ζιζάνια* were sown by an enemy, a different seed from the wheat, from a different origin. When once in the ear, they can of course be distinguished at a glance.

Many instances of the pernicious effects of darnel are on record, both in England and elsewhere, and several travellers have mentioned cases that came under their own observation. The seeds are separated from the wheat in the East by the use of the fan and the sieve, as the grains have very little husk, and easily fall through, being very small. When they have not been shed from the ear, the fan at once drives them off. Animals also

suffer from the poison, which produces dizziness, and then has soporific effects when taken in too small quantities to be fatal. The taste is very bitter and disagreeable.

THISTLE. [See BRAMBLE.]

THORNS. THORN-HEDGE. [See BRAMBLE.]

WHEAT. Heb. *chittah.*—The history of the cultivation of Wheat, the most important and valuable of all cereals, goes back as far as the beginning of history. In the days of Jacob, Wheat was a principal grain of Mesopotamia, if we may judge by the expression the 'wheat harvest' being used to mark the time of the year (Gen. xxx. 14). Again, we find the particular variety of Wheat for which Egypt has long been famous described in Pharaoh's dream: "I saw in my dream, and, behold, seven ears came up in one stalk, full and good" (Gen. xli. 22). This was the many-eared variety, or Mummy Wheat, which is still cultivated in the Delta occasionally, and which is depicted on Egyptian monuments. The wheat, being later than the barley, escaped destruction during the plague of hail.

Wheat was one of the blessings of the Promised Land, "a land of wheat and barley" (Deut. viii. 8), and we find the time of Wheat harvest named repeatedly as one of the epochs of the year. This was about a month after the Barley harvest, and took place usually in the month of May, though it might be a little earlier in the Jordan valley. Even in the highlands of Galilee it is rarely so late as the beginning of June. As the latter rains were over long before Wheat harvest commenced, and the phenomenon of thunder, though very common in winter in that hilly country, is quite unknown in summer, the storm of thunder and rain sent during Wheat harvest, at the prayer of Samuel (1 Sam. xii. 17, 18), was indeed "a great thing," and caused the alarmed people "greatly to fear the Lord and Samuel."

The wheat is sown in November or December, immediately after the barley, the exact time depending on the date and the abundance of the former rain, since, until the rains have softened the soil, it is impossible after the heats of summer to till it for seed. The return of wheat varies exceedingly, and from the slovenly agriculture, the neglect of rotation of crops, and the almost entire absence of manure, is much less than it

might be, or than it was in former times. Thirty-fold the seed is considered a good return. Our Lord speaks, in the Parable of the Sower, of wheat in good ground producing a hundred-fold (Matt. xiii. 8). We have often counted sixty grains in an ear, and even a hundred is sometimes reached; and when we remember that several ears may spring from a single seed, we may see that a hundred-fold under favourable circumstances would be no excessive produce. The return of a hundred for one is spoken of as a wonderful harvest.

The wheat when reaped is generally threshed at once, either by oxen treading out the corn on the threshing floor, which is very often common to the whole village, the surface of the rock being levelled, or an artificial lime floor laid; or by a heavy wooden wheel or roller; or, thirdly, by a flail. All methods are still practised, and all are alluded to in Scripture: "The ox that treadeth out the corn" (Deut. xxv. 4): and many other passages: "The fitches are not threshed with a threshing instrument, neither is a cart wheel turned about upon the cummin; but the fitches are beaten out with a staff, and the cummin with a rod" (Isa. xxviii. 27).

The winnowing is performed in a still more inartistic fashion. So soon as the straw has been removed from the floor, the threshed corn is tossed into the air by shovels, if there be a slight breeze, when the chaff is carried off, and the wheat falls back. This is repeated till it is tolerably clean, when a sieve is employed to complete the operation, and to get rid of the dust and dirt which still remains. If there be no wind, a sort of great fan or flapper is employed. The sifting is very necessary after this rough winnowing, and many of the Bedouin on a journey carry their sieve on their back, to clean the wheat for themselves, and the barley for their horses every evening. The light or refuse wheat is always given to the poor. Thus Amos reproaches the avarice of the rich, who "sell the refuse of the wheat" (viii. 6), *i.e.* the sweepings of the floor left after sifting it.

When winnowed and sifted, the wheat is stored in underground pits. These 'silos' or granaries are hollow chambers, about eight feet deep, carefully cemented to exclude the damp, and with a circular opening about fifteen inches in diameter, which could easily be concealed. In such receptacles the corn will keep good for

several years. Many such may still be seen in different parts of the country. I have found them on Mount Carmel, often close to an ancient winepress, and about many of the deserted cities of Southern Judah. Such a storehouse as those on Mount Carmel is probably alluded to in Jer. xli. 8: "Slay us not: for we have treasures in the field, of wheat, and of barley, and of oil, and of honey."

Generally, owing to the insecure state of the country, these storehouses are made under the house, especially under the most retired portion, the apartments of the women. This custom is alluded to in 2 Sam. iv. 6: "They came thither into the midst of the house, as though they would have fetched wheat." And again in xvii. 18, 19: "They came to a man's house in Bahurim, which had a well in his court; whither they went down. And the woman took and spread a covering over the well's mouth, and spread ground corn thereon; and the thing was not known"—where the 'well' is probably the dry well or storehouse under the woman's chamber.

In an Arab village, the storehouses are often in the centre of the village square for the barley—for the wheat and other more precious stores, under the chambers. Thus, we once saw, on entering a village which had been recently sacked, the mouths of these dry wells opened and plundered. The Arabs who were with us, scenting the booty, soon discovered others neatly concealed, by sounding the surface, and then rushed into the houses, where, under the inner chambers, they found the secret stores which the robbers had not had time to explore, and from which they brought out a rich booty of indigo, wheat, and other valuable treasures.

From the days of Solomon, Palestine continued to be a corn-exporting country, and Phœnicia was especially dependent upon their neighbours for cereals. So Solomon supplied Hiram (1 Kings v. 11: 2 Chron. ii. 10, 15). Among the commodities of Tyre, "Judah and the land of Israel were thy merchants: they traded in thy market wheat of Minnith" (Ez. xxvii. 17). And centuries later Tyre and Sidon desired peace with Herod, "because their country was nourished by the king's country" (Acts xii. 20). And still in its decadence and squalor, Palestine exports considerable quantities of wheat from the ports of Acre and Caiffa. Long trains

of hundreds of camels may be seen in the summer, bringing to Nazareth from the Hauran and the Belka (the ancient Bashan, and Moab, and Ammon), the stores of wheat from which the wealth of the east of Jordan is derived. At Nazareth the purchases are usually made by the merchants of the coast.

WHEAT OF MINNITH.

Light is cast on the expression in Ezekiel (xxvii. 17) of the 'wheat of Minnith' in which the Israelitish merchants traded, by this modern commerce. Minnith, we know from Judges xi. 33, was a place in the far east of Reuben, among the children of Ammon, and later authorities place it between Heshbon and Rabbah. The ruins, called Menjah, have with great reason been iden-

tified with Minnith. They were pointed out to us in the Belka, the modern name of that country; and at the time of our visit, the end of April, the whole country round Menjah was one sea of wheat just ready for the sickle. Later in the year we saw caravans of camels conveying the wheat of the Belka to the coast. Much of the wheat of this district is of a very prolific, bearded variety, called Heshbon Wheat, with several ears on one stalk, and is doubtless 'the wheat of Minnith' of old.

Besides this large-eared variety, which is rare, we noticed three other varieties grown in Palestine—1st, a white wheat with a very short beard, grown occasionally on the coast; 2nd, the coarse wheat or spelt [see RYE], and that which is the most generally grown, with a coarse husk and very long beard, as long as that of our barley, with a short thick-set ear, and short straw. Another variety, longer and coarser in the straw, has a black beard, and a black or brown husk. The species are, I believe, *Triticum compositum*, *Tr. spelta*, and *Tr. hybernum*. The expression "principal wheat" (Isa. xxviii. 25), probably alludes not to any particular sort, but to its place as the principal crop: "Fat of kidneys of wheat" (Deut. xxxii. 14) merely denotes the finest sort or the richest harvest of wheat.

From the allowance of an equal quantity of wheat and of barley provided by Solomon for the maintenance of the artificers employed on the Temple (2 Chron. ii. 10), we may presume that the inferior grain was then, as now, mixed with the better, for bread, by the poorer classes. The same habit appears to be alluded to in Prov. xxvii. 22: "Though thou shouldest bray a fool in a mortar among wheat with a pestle, yet will not his foolishness depart from him," meaning 'Let a fool be ever so much in the company of wiser men, he will still remain a fool.'

'Parched corn' is repeatedly mentioned in Scripture, and was always wheat scorched, generally while fresh, and eaten without further preparation. We once witnessed a party of reapers making their evening meal of parched corn. A few sheaves of wheat were brought down and tossed on the fire of brushwood. As soon as the straw was consumed the charred heads were dexterously swept from the embers on a cloak spread on the ground. The women then beat the ears and tossed them

into the air until they were thoroughly winnowed, when the wheat was eaten at once while hot. The dish was by no means unpalatable. The green ears had become half charred by the roasting, and there was a pleasant mingling of milky wheat, and a fresh crust flavour, as we chewed the parched corn. An ear of corn was called *Shibboleth*, the word which the Ephraimites lisped, and so betrayed themselves to Jephthah (Judg. xii. 6).

WORMWOOD. Heb. *la'anah*, Gr. Ἄψινθος.—Of this well known genus of the composite plants (*Artemisia*) several species grow in Palestine. Kitto gives *Artemisia judaica*, *A. fruticosa*, *A. cinerea*, and *A. nilotica*. We collected *Artemisia deliliana* on the coast. The Common Wormwood is *Artemisia absinthium*. *La'anah* is always translated 'wormwood,' excepting in Amos vi. 12, where it is rendered 'hemlock': "Ye have turned . . . . the fruit of righteousness into hemlock" (*la'anah*).

The word frequently occurs, but always metaphorically, or as a comparison for that which is bitter or cruel. Thus, "Lest there should be among you a root that beareth gall and wormwood" (Deut. xxix. 18). "Her end is bitter as wormwood" (Prov. v. 4). "Ye who turn judgment to wormwood" (Amos v. 7). "I will feed them, even this people, with wormwood" (Jer. ix. 15; xxiii. 15). "He hath made me drunken with wormwood" (Lam. iii. 15). "Remembering mine affliction and my misery, the wormwood and the gall" (id. iii. 19).

In the Apocalypse the name of the star which fell upon the rivers "is called wormwood: and the third part of the waters became wormwood; and many men died of the waters, because they were made bitter" (Rev. viii. 11).

The bitter taste of all the species of Absinthe, or *Artemisia*, is well known. The Arabic name is almost the same as the Hebrew, from a root signifying 'to curse.'

APPENDIX.

Note A, Page 16.

Criticism may enable us to illustrate yet more clearly the marvellous scientific accuracy of the Hebrew expressions employed in this passage—Prov. viii. 22–31. The true meaning of the word *hhootzoth*, translated in ver. 26 'fields,' appears rather to be 'surroundings,' *i.e.* the successive formations which constitute the earth's crust, each of which was in its turn the outer or upper surface when elevated above the water. The verse may be thus translated: "At the time when He had not made the earth (*i.e.* the globe in its earliest condition) and the (successive) outer surfaces, and the highest (*i.e.* the latest) of the soils of the habitable world." The drift of the whole passage is evidently to show the past eternity of the Son of God by a reference to His *successive* creative acts through the lapse of incalculable time, by which our globe was brought into its present state. The next verse, too, has marvellous scientific accuracy: "When He decreed (established as a natural law) the circular (orbicular) form of the surface of the deep"—involving, of course, the law of gravitation.

The word *hhootzoth* occurs also in Job v. 10, xviii. 17, and is there rendered 'fields' and 'streets.' But the meaning of *hhootz*, as is evident from its use in many passages, is 'any thing or place surrounding or enclosing another;' and this is supported by all the best lexicographers. 'Fields' is far too limited an idea in Job v. 10; and in Job xviii. 17, it should be rendered "on the face of the globe," which would make the latter clause or parallel of the verse correspond better with the former. "His remembrance shall perish from the earth, and he shall have no name on the face of the globe." Several expositors, though without any geological knowledge, have seized the true meaning of the word. Thus we see that the facts of sound philosophy are present everywhere, though of course we cannot expect to find the *technical* language of science.

Note B, Page 112.

The prophet Habakkuk refers undoubtedly not to the panther, or leopard, as we usually term it, but to the Chetah, or hunting leopard (*Felis jubata*), the rush of which upon its prey is well known to Indian sportsmen as perhaps the most rapid motion of which any mammal is capable. The Chetah is the original *leopardus*, and to this day is believed in Barbary to be the offspring of a leopardess by a lion.

Note C, Page 116.

It is doubtful whether *tame* pigs were esteemed actually 'unclean' by the ancient Egyptians. They are certainly represented among other farming stock on the Egyptian tombs. Yet it is unquestionable that in their mythology a pig was a symbol of evil as regards a *future* state, and this is corroborated by Herodotus.

Note D, Page 147.

There appears to be a further allusion to wild cattle in Ps. l. 9-12, where, in our translation, the full force of the original is scarcely brought out. The contrast is there very strongly drawn between the *tame* animals under man's control, and the *wild* animals fit for sacrifice, over which man could exercise no ownership. There is an antithesis and a parallelism in each verse. The 'bullock out of thy house' (*i.e.* stall) is contrasted with the wild 'beast of the forest,' or auerochs; the 'goat of the folds' with the 'antelopes and ibex of a thousand hills.' So also 'the fowls' (*'oph*), and 'wild beasts' (*zîz*), ver. 11, are contrasted with the bulls and goats of ver. 13.

Note E, Page 313.

The word *Tzelatzal* also occurs in Job xli. 7, where it is translated 'fish-spears.' It is very possibly identical with the Abyssinian *tzaltzala*, and from its formidable proboscis, with which it penetrates the thick hides of cattle, is metaphorically applied in Job to fish-spears. The same word also occurs in Isa. xviii. 1: 'Woe to the land shadowing with wings!' (*tzelatzal*,) where the real meaning would appear to be, 'Ho to the land of the gad-fly' beyond the rivers of Ethiopia'—very possibly a metaphor describing Abyssinia. A closely-allied insect, the *tsetse* of South Africa, doubtless from the same etymological root, is described by Dr. Livingstone and other travellers, and is well known as a dreaded scourge and pest of cattle in those regions.

Note F, Page 320.

Both Naturalists and Biblical Students owe a debt of gratitude to the late Mr. J. T. Moggridge, for the care and persevering observation with which he has studied and elucidated the habits of the Harvesting Ants in his two interesting volumes, "Harvesting Ants, and Trapdoor Spiders." He has shown how completely in error were the English, French, and German naturalists, who have repeated without question, the statement of Kirby and Spence that the *European* Ants at least make no hoard or magazine of grain for use. Latreille, Huber, and others added the weight of their

authority, drawn only from Northern experiences; and subsequent compilers, like Blanchard, and commonplace objectors against the accuracy of Holy Writ, have caught it up and generalized upon it. The result of further investigation has shown with what care the generalizations of even the ablest observers are to be received, and how often they dogmatize from insufficient data: while, as has often happened in other cases, the accuracy of Scripture and of ancient authorities has in the end been triumphantly vindicated.

It is true that of 104 known species of Ants inhabiting Europe, only 3, *Atta barbara*, *Atta structor*, and *Pheidole megacephala* are known to lay up stores for winter. How then, it may be asked, is it that the ancients were familiar with the storing habits of the ant, while the moderns have remained in ignorance of them? Simply because these species are the commonest on the Mediterranean shores, and have not been noticed in the north of Europe. The long trains of harvesters remain in the south conspicuous in the fields for hours together, while *Atta structor* is in the habit of seeking the neighbourhood and even the interior of towns, so that it is a familiar object to every one.

The earliest classical writers speak of the storing habits of the ants. Thus Hesiod (Days, line 14) calls the ant ἶδρις, 'the provident,' and speaks of its harvesting the grain. Horace (Sat. I. i. 33) alludes to its foresight, 'Haud ignara ac non incauta futuri.' So Æsop in his familiar fable of the 'Ant and the Grasshopper.' Plautus (Trin. II. 4) speaks of money vanishing in a twinkling like poppy seeds thrown to the ants. Virgil in a familiar passage (Æn. IV. 402—407) compares the Trojans hurrying their departure to the busy trains of harvesting ants. In fact 'As provident as an ant' was as familiar as with us 'as busy as a bee.'

Ælian, a writer on Natural History in the 2nd century A.D., gives a very full and detailed account of the habits of the Ant (De Nat. Anim. II. 25, and VI. 43), describing among other particulars two very curious examples of provident instinct, which have been verified by recent observation, viz: the biting off the radicle of the foot of the seed when it begins to germinate; and also the fact of some of the ants, when harvesting, climbing up the stalks, and nibbling off the seed capsules, which fall among the workers below, who then detach the husk or chaff, before carrying off the grain, and storing it in their subterranean granaries.

But to the Bible student the most interesting evidence of the observed habits of Ants is to be found in the Mishna, compiled by Hillel, the Jewish Rabbi, about the time of our Saviour. In the section called Zeraim, which has to do with seeds and crops; when treating of the corners of the fields bearing crops, which should be set aside for the poor, and of the rights of gleaners, we are told that the granaries of ants which may be found in a growing crop of corn shall belong to the owner of the crop, but if the granaries are found *after* the reapers have passed, the upper part shall go to the poor and the lower to the owner. The Rabbi Meir is of opinion that the whole should go to the poor, because when any doubt arises about a question of gleaning, the doubt is to be given in favour of the gleaner.

The reason of this minute piece of legislation seems to be, that it

the heaps were discovered after the passing of the reapers, it was possible that the ants who had continued to work might have collected some grains from the fallen corn, which would be the property of the reapers. These grains would be the last gathered, and would therefore be on the top of the store. The regulation is not only interesting as an illustration of the manners of those who tithed mint, anise, and cummin; but as proving that the harvesting ants of Palestine had earned a place in these laws, by amassing stores of sufficient size, and so deposited, as to make them worth collecting.

Even recently, Mons. G. de St. Pierre (Ants and Spiders, p. 29) mentions the depredations made among the corn crops at Hyères by these ants. Colonel Sykes (Trans. Ent. Soc. Lond. I. 103) records the harvesting habits of an Indian species, *Atta providens*, and gives a detailed account of his observations; being, as he states, the more careful in his notes, from the denial of this habit by European naturalists. Dr. Jerdon, too (Madras Journ. Lit. and Sci. 1851), describes a similar habit of storing, in two other species, *Atta rufa* and *Œcodoma diffusa*. Mr. Horne (Science Gossip, 1872, p. 109) gives similar details of another Indian species: and Dr. Buchanan White corroborates Mr. Moggridge's account of the Italian ants (Trans. Ent. Soc. Lond. 1872, p. 5). Mr. Bates in his travels on the Amazon made similar observations on certain South American ants. (Naturalist on the Amazon, chaps. 1 and 4.)

Most of these observers have recorded the extraordinary habit in these ants, of occasionally bringing their stores to the surface and then burying them again. Whether this be to check germination or not, we have not yet the means of deciding. Mr. Moggridge (to whom I am indebted for the greater part of this information, kindly communicated to me before the publication of his book) has noticed, as have several of his predecessors, the ants biting off the radicle of the seed when it has begun to germinate. He was of opinion that the ants by this treatment and by the exposure of their grain, actually malt it before eating it, waiting till the sprouting seed is ready to grow, and has developed the saccharine matter which is so grateful to the tribe, as well as has become soft, and more accessible to their mandibles.

INDEX

OF PASSAGES OF SCRIPTURE ILLUSTRATED OR QUOTED.

GENESIS.

CHAP.	PAGE
i., 11, 12	330, 452
— 20–23	156
— 20	254
— 21	151, 264
— 25	254
ii., 12	422
iii., 1	279
— 7	350
— 18	423, 425, 427
iv., 4	133
vi., 14	356
vii., 2	37
viii., 7	198
— 8–12	211
— 11	373
ix., 20	403
xii., 6	371
— 16	59
xiii.	134
xiv., 7	380
— 10	24
— 18	403
xv., 9	69, 211
— 11	168
xvi., 12	42
xviii., 7	68, 69
xix., 24, 25	25
xxi., 33	356
xxii., 3	39
xxiv., 11	60
— 35	134
— 64	60
xxv., 34	461
xxvi., 14	134
xxvii., 9	91
xxix., 7, 8	143
xxix., 10, 11	142
xxx., 14	466, 488
— 32–42	144
— 33	89
— 37	333, 344, 358, 389
— 43	59
xxxi., 34	61
xxxii., 14	89
— 15	59, 65
xxxiv., 23	68
xxxv., 4	367, 400
— 8	326, 371
xxxvi., 24	125
xxxvii., 25	59, 336, 362, 365, 393, 458
xxxviii., 6	385
— 12	137
xl., 9, 10	403
— 11	412
xli., 2	435
— 5	437, 440
— 18	435
— 22	437, 488
— 49	440
xliii., 11	324, 331, 336, 362, 365–6 393, 411, 458, 470
xlvii., 17	103, 284
xlix., 9	106, 119
— 11	403, 409, 411
— 14	40
— 17	272
— 27	152

EXODUS.

ii., 3	483, 485
— 16–21	142

CHAP.	PAGE
iii., 2	392
— 2, 4	438
iv., 20	39
vii., 9	151
— 9–11	267
viii.	280, 327
— 16, 17	304
ix., 3	59
— 31	421, 445
— 32	479
x., 5, 6, 13, 15	308
— 12	151
xii., 8	432
— 22	456
xiv., 9, 17	102
xv., 21	104
— 27	379
xvi., 20, 24	300
— 31	440
xix., 4	176
xxi., 28–36	71
xxii., 5	406
— 6	440
— 31	164
xxiii., 12	70
— 28	322
xxv., 5	391
— 10–13, 23, 28	390
— 31	437
xxvi., 1	137
xxvi., 7	94
— 14	44
— 15, 26	390
— 32–37	390
xxvii., 1–6	391
xxviii., 33, 34	389
xxix., 22	143
xxx., 1–5	391
— 23	336, 439
— 24	340
— 34	297, 355, 395
xxxii., 5	73
xxxv., 26	94
xxxvi., 14	94
xxxix., 24, 26	389

LEVITICUS.

i., 15	211
ii., 1	377
— 14, 16	440
iii., 9–11	143
v., 7	211
vi., 10	211
xi., 4	65
— 5	75
— 6	98
— 7	145
— 9–12	283
— 13–19	158
— 13	170, 182
— 14	180, 186
— 15	199
— 16	188, 191, 208, 235
— 17	192, 193, 252
— 18	178, 249, 251
— 19	45, 208, 241, 246
— 21, 22	306
— 22	308, 310
— 29	122, 150, 254, 255
— 30	85, 120, 262, 265, 266, 268, 295
xii., 8	211
xiv., 4	341
— 4–6	456
— 22	211
— 51	456
xv., 14, 29	211
xvii., 7	69, 132
— 13	162
xix., 10	410
— 19	40, 124
xxii., 8	164
xxiii., 14	440
— 40	347, 379, 383, 401

NUMBERS.

v., 15	422
vi., 3	411, 412
ix., 11	432
xi., 5	284, 441, 448, 460, 468, 475
— 7	422, 440
— 31, 32	230
xiii., 23	350, 388, 404
— 33	311
xviii., 27	440
xix., 6, 18	341, 456
xx., 5	388, 403
— 8	37
xxi., 6–8	277
xxii., 4	452
— 21	39
xxiii., 22	146

CHAP.	PAGE
xxiii., 24	116
xxiv., 9	116
xxxii., 3, 36	112
xxxii., 16	139
xxxiii., 9	379
— 18	360

DEUTERONOMY.

i., 44	323
ii., 8	380
iv., 18	293
vi., 11	373
vii., 20	322
— 22	37
viii., 7, 8	373, 403
— 8	323, 350, 388, 488
— 15	277, 301
xi., 14	30
— 30	371
xii., 15	100, 128
xiv., 4	126
— 5	56, 83, 97, 127
— 7	65, 75, 98
— 8	145
— 11–20	158
— 12	170, 182
— 13	180, 186
— 14	199
— 15	188, 191, 208, 209
— 16	192, 193, 233
— 17	178, 251, 252
— 18	45, 241, 246, 249
xv., 22	128
xvii., 16	104
xviii., 4	136
xxii., 6	160
— 10	40
xxiv., 20	376
xxv., 4	70, 489
xxviii., 38	309
— 39	300
— 40	373
— 42	313
— 49	175
xxix., 18	447, 493
xxxii., 11, 12	160, 176
— 14	136, 492
— 24, &c.	37
— 32	413, 447, 482
— 33	151, 264, 269, 270, 447

CHAP.	PAGE
xxxii., 16	438
xxxii., 17	146
— 24	373
xxxiv., 3	381

JOSHUA.

ii., 6	445
v., 11, 12	440
vi., 4	137
ix., 4	93
xi., 4, 16	103
xiii., 26	367
xv., 32	118, 388
— 33	322
xix., 6	118
— 26	371
— 35	24
xxi., 24	99
— 25	388
xxiv., 12	322
— 26	367

JUDGES.

i., 14	39
— 16	381
— 19	104
— 31	288
iii., 13	381
iv., 3	104
— 5	326, 381
— 11	371
v., 16	139
— 18	100
— 22	104
vi., 4	309
— 11	371, 400, 409
— 19	91
vii., 12	59, 309
— 13, 14	422
— 25	409
viii., 7, 16	430
— 21	61
ix., 9	373
— 14	424
— 37	371
x., 4	39
xi., 33	491
xii., 6	493

CHAP. PAGE
xii., 12 99
— 14 39
xiii., 15 91
xiv., 8 224
— 18 120
xv., 4, 5 . . . . 87, 110
— 5 440
xvi., 9 447
xx., 33 381

RUTH.

i., 22 421
ii., 2 440
— 14 411
— 23 421
iii., 7 440

I. SAMUEL.

v., 4 293
vi., 5 122
vi. 122
— 7 68
x., 3 371
xii., 16–19 31
— 17, 18 . . . . 33, 488
xiii., 18 108
xiv., 2 388
— 25, 26 324
xv., 15 68
xvi., 1 137
xvii., 2, 19 . . . 371, 400
— 34 47
— 36 118
— 43 79
xix., 13 94
xxi., 9 . . . . . 371, 400
xxii., 6 . . . . . 356, 424
xxiv., 2 96
— 3 139
— 14 . . . . . 79, 305
xxv. 137
— 2 89
— 18 . . . . . 352, 410
— 20 39
xxvi., 20 . . . 162, 224, 305
xxx., 12 . . . . 352, 410
— 17 60
xxxi., 13 356

II. SAMUEL.

CHAP. PAGE
i., 23, &c. 120, 175
ii., 18 128
iii., 8 79
iv., 6 490
v., 23, 24 363
vi., 5 353
vii., 8 139
viii., 4 105
ix., 8 79
xiii., 1 385
— 23–26 137
— 29 124
xiv., 27 385
xvi., 1 . . . . . 410, 412
— 9 79
xvii., 8 48
— 18, 19 490
— 23 39
— 28 . . . . 422, 461, 476
— 29 69
xviii. 400
— 9 124
xix., 26 39
xxi., 9 421
xxii., 34 100
xxiii., 11 461
— 20 . . . . . 29, 119

I. KINGS.

i., 33 124
iv., 23 . . . . 69, 83, 100 128
— 24 351
— 25 413
— 26 . . . . . 102, 105
— 28 . . . . . 80, 102
— 33 . . . . . 284, 457
v., 11 490
vi., 18 452
— 23 371
— 29–36 385
— 31–33 377
vii., 18 389
— 24 452
— 26 462
viii., 37 309
— 63 69
ix., 18 383
— 26 380
x., 11, 12 331
— 18–20 82

CHAP. PAGE
x., 22 . 37, 81, 223
— 25 124
— 27 398
— 28, 29 105
xii., 11 302
xiii., 14 400
— 23 39
— 24 118
xvii., 1 31
— 3-6 200
xviii., 5 . . . 37, 124
— 44 33
— 45 31
xix., 4, 5 360
— 19 68
xx., 23 104
— 36 118
xxi., 19, 23, 24 . . 79
xxii., 39 82

II. KINGS.

i., 24 47
iii., 4 134
iv., 24 39
— 38-40 450
— 39 455
v., 17 124
vi., 25 . . . . 41, 443
viii., 9 59
— 13 79
ix., 27 383
xiii., 7 105
xiv., 9 . . . . 343, 424
— 22 380
xv., 25 118
xvii., 25, 26 118
xviii., 31 351
xix., 28 107
— 37 172
xx., 13 393
xxiii., 11 107

I. CHRONICLES.

iv., 32 388
v., 21 . . . . 59, 134
vi., 39, 77 388
x., 12 . . . 356, 400
xii., 8 128
— 40 . 68, 124, 352, 410

CHAP. PAGE
xiv., 14, 15 363
xv., 11 134
xvi., 3 412
xxvii., 28 398
— 30 . . . . . 41, 60

II. CHRONICLES.

i., 15 398
ii., 8 331
—10, 15 . . . 421, 490, 492
iii., 5 385
iv., 5 462
vi., 28 309
vii., 13 311
ix., 10, 11 331
— 17-19 82
— 21 . . . . 37, 223
— 27 398
x., 14 302
xi., 15 132
xiv., 15 59
xvii., 11 134
xx., 2 380
xxv., 18 424
xxviii., 15 381
xxix., 33 69
xxxiii., 11 424
— 14 288

EZRA.

ii., 66 124
iii., 7 343

NEHEMIAH.

iii., 3 288
iv., 3 87
vii., 68 106
vii., 15 366, 371, 379, 382, 386, 401
xii., 16 288

ESTHER.

i., 6 440
ii., 12 364
viii., 10 . . . 102, 125
— 10-14 81

JOB.

CHAP. PAGE
iv., 19 326
vi., 5 41
vii., 5 301
— 12 . . . . 151, 269
viii., 11 . . . . 433, 435
— 14 303
ix., 26 174
xi., 12 41
xiii., 28 326
xv., 33 . . . . 375, 413
xvi., 13 448
xvii., 14 300
xviii., 8–10 161
xx., 14–16 . . . . 270, 448
— 16 . . . 276, 278, 447
— 25 448
xxi., 26 301
xxiv., 5 42
— 18 407
— 20 301
xxv., 6 300
xxvii., 18 . . . . 306, 443
xxviii., 7 . . 169, 180, 186
— 18 . . . . 298, 328
xxix., 23 31
xxx., 1 . . . . 78, 141
— 4 . . . . 360, 466
— 7 . . . . 432, 475
— 28, 29 234
— 29 . . . 110, 191, 264
xxxi., 19, 20 136
— 22 437
— 40 . . . 424, 439
xxxvi., 27 395
xxxvii., 17 33
xxxviii., 40 118
— 41 199
xxxix., 1 . . . . 95, 100
— 5, 6 41
— 9–12 147
— 13 . . . . 223, 233
— 13–18 235
— 18 248
— 19–25 107
— 20 309
— 26 188
— 27–30 175
— 30 174
xl., 15–24 51
— 22 44
xli. 258

CHAP. PAGE
xli., 1, 2 . . . . 291, 436
— 7 292
— 20 437

PSALMS.

x., 9 118
xviii., 33 100
xix., 10 326
xxii., 6 101
— 12 71
— 16 72
— 21 146
xxiii., 5 377
xxix., 6 146
— 9 100
xxxii., 9 107
xxxvii., 2 454
— 35 338
xlii., 1 101
xliv., 19 . . . . 110, 264
xlv., 8 . . . 82, 333, 341, 364
xlviii., 7 34
l., 10–13 88
— 11 50
li., 7 457
lii., 8 373
lv., 6 216
lviii., 4, 5 . . . . 270, 272
— 8 295
— 9 . . . . 424, 432
lix., 14, 15 79
lxiii., 10 . . . . 87, 110
lxvi., 15 88
lxviii., 18 216
lxxii., 6 454
lxxiv., 13 269
— 14 . . . . 151, 258
— 19 220
lxxv., 8 411
lxxvii., 20 140
lxxviii., 27 230
— 45 . . . . 280, 327
— 46 313
— 47 . . . . 398, 403
— 48 309
— 70 139
lxxx., 1 140
— 8–11 412
— 9–11 407
— 12 406
— 13 . . . . 50, 54, 407

CHAP. PAGE
xxxi., 16 324
xxxiv., 3 . . 159, 202, 204
— 6 363
xci., 13 . 151, 264, 267, 270
xcii., 10 . . . 146
— 12 . . . 342, 383
cii., 6 . . . 193, 251
— 7 202
ciii., 5 174
civ., 10–12 . . . 161
— 16 341
— 27 248
— 18 . . . . 75, 95
— 21 119
— 25, 26 257
— 32 15
cv., 30 280
— 31 304
— 33 . . . 350, 403
— 34 . . . 309, 312
— 40 230
— 41 327
cix., 23 315
cxvii., 12 323
cxix., 83 . . . 93
cxx., 4 360
cxxiv., 7 . . . 161
cxxviii., 3 . . . 408
cxxix., 6, 7 . . . 454
cxxxvii., 1, 2 . . . 414
cxl., 3 275
— 5 161
cxliv., 5 . . . 15
cxlvii., 9 199
— 16 144

PROVERBS.

v., 4 493
— 19 . . . 100, 131
vi., 5 128
— 6–8 319
vii., 17 . . 333, 346, 364
— 23 161
viii., 25, 26 . . . 16
x., 26 411
xi., 22 145
— 26 440
xv., 17 69
— 19 427
xvi., 15 31
xvii., 12 48
xxiii., 30 411
— 32 275
xxiv., 30, 31 . . 432, 474, 475
xxv., 11 334
xxvi., 1 31
— 2 204
— 9 424
xxvii., 8 . . . 160, 202
— 22 492
— 23–26 . . . 136
— 25 454
— 26, 27 . . . 91
xxviii., 1 120
xxx., 15 . . . 299
— 17 . . . 174, 199
— 19 298
— 24, 25 . . . 75, 319
— 28 304
— 29–31 88
— 30 . . . 116, 120
— 31 97
xxxi., 13 . . 136, 446

ECCLESIASTES.

vii., 6 432
ix., 12 161
x., 1 327
— 8 278
xii., 4 160
— 5 . . . 311, 333, 458

CANTICLES.

i., 12 484
— 13 364
— 14 . . 339, 340, 405
— 15 220
— 17 353
ii., 1 . . . 459, 476
— 1, 2 462
— 3 . . . 334, 424
— 5 . . . 334, 412
— 8, 9 100
— 9 129
— 11, 12 . . . 158, 219
— 12 160
— 13 352
— 14 . . . 213, 220
— 15 407
— 16 462
— 17 129
iv., 1 . . . 94, 220

CHAP.	PAGE
iv., 3	388
— 5	462
— 8	113, 118
— 11	342
— 13, 14	339, 388, 462, 479, 485
— 14	333, 346, 439
v., 1	336
— 5	364
— 11	199
— 12	220
— 13	336
vi., 2, 3	336, 413, 462
— 5	94
— 9	220
— 11	336, 462
vii., 2	462
— 4	82, 286
— 7	386
— 8	334
— 13	466
viii., 2	388, 412
— 5	334
— 14	129

ISAIAH.

i., 8	441
— 18	144, 319
— 31	447
ii., 12, 13	370
— 13	341
— 20	46, 120
v., 1–7	412
— 2	406, 409, 411, 413
— 2–4	439
— 4	413
— 24	454
— 28	107
— 29	119
vi., 13	400
vii., 18	323, 327
— 19	428
— 21, 22	69
— 23–25	428
ix., 8	275
— 10	398
— 14	436
xi., 6	111, 153
— 7	68, 70
xiii., 14	128
— 21	38, 50 131, 191, 235

CHAP.	PAGE
xiii., 22	109, 110, 111, 264
xiv., 9	88
— 11	300
— 23	243
— 29	275, 277
xv., 6	113
— 7	414
xvi., 8–10	405, 408, 409
xvii., 6	375
xviii., 1, 2	433
— 4	455
— 5	413
— 6	169
xix., 6, 7	435
— 8	284, 291
— 9	445, 447
— 10	287, 289
— 15	436
xxi., 7	60, 102
xxv., 6	411
xxvi., 19	455
xxvii., 1	151, 258, 261
— 2	412
— 8	34
xxviii., 4	352
— 25–27	443, 444
— 25	479, 492
— 27	489
— 28	103
xxx., 6	60, 276, 277
— 24	40, 70
xxxi., 1	105
— 4	118, 119
xxxii., 14	42
— 20	40
xxxiii., 4	313
— 11	454
— 12	432
xxxiv., 7	146
— 11	192, 199, 243, 251
— 13	110, 191, 235, 264, 424, 474
— 14	38, 50, 109, 131, 195
— 15	180, 181, 194
xxxv., 1	476
— 2	341
— 6	100
— 7	433, 453
xxxvi., 16	351
xxxvii., 24	343, 353
— 38	172
xxxviii., 14	204, 217, 239
— 21	352
xxxix., 2	392

CHAP. PAGE
xl., 6, 7 453
— 11 140
— 22 311
— 31 175
xli., 14 301
— 19 339, 353, 365, 371, 386, 390
xlii., 3 446
xliii., 20 . . . 110, 191, 264
— 19, 20 236
— 24 . . . . 439, 485
xliv., 3, 4 414
— 4 453
— 14, 15 . . . . 335, 348
xlvi., 11 174
l., 2 287
— 9 326
li., 8 300
— 9 . . . . 259, 269, 270
— 20 56
lv., 13 . . . . 353, 365, 428
lviii., 5 437
lix., 5 . . . 275, 276, 303
— 11 . . . . 48, 217
lx., 6 . . 59, 64, 80, 106, 355
— 7 134
— 8 . . . . 159, 213
— 13 . . 339, 341, 353, 386
lxiii., 2, 3 410
lxv., 4 145
— 25 153
lxvi., 3 79
— 3, 17 145
— 17 122
— 20 124
— 24 301

JEREMIAH.

i., 11, 12 332
ii., 21 . . . 411, 412, 413
— 22 480
— 23 . . . . . 64, 80
— 24 42
iii., 3 31
iv., 7 118
v., 6 . . . 112, 118, 153
— 17 350
— 24 30
— 26, 27 163
vi., 20 . . . . 355, 439, 485
viii., 7 . 158, 204, 219, 239, 246
viii., 13 350
— 14 . . . . 447, 448
— 17 275
— 22 . . . . 336, 338
ix., 11 . . . . . 110, 264
— 15 . . . . 447, 493
x., 22 . . . . 110, 264
xi., 16 373
xii., 8 118
— 9 . . . . 108, 253
xiii., 2, 23 112
xiv., 5 100
— 6 . . . . 42, 110, 264
xv., 6 454
xvii., 6 358
— 11 224
xxiii., 15 . . . . 447, 493
xxiv., 2 399
xxv., 30 409
— 38 118
xxxi., 29, 30 413
xxxviii., 14 206
xli., 5 159
— 8 . . . . 324, 490
xlvi., 23 309
xlviii., 6 358
— 28 213
— 32, 33 . . . 405, 409
— 34 113
xlix., 16 175
— 19 118
— 33 . . . 110, 264
l., 8 88
— 11 68
— 39 . 50, 109, 111, 191, 235
— 44 118
li., 14, 20 312
— 25 16
— 34 . . 151, 260, 269, 270
— 37 . . . . 110, 264
— 38 119

LAMENTATIONS.

i., 6 100
iii., 15 . . . . 432, 493
— 19 493
iv., 3 . . . 152, 235, 238
— 5 319
— 19 175
v., 18 87

EZEKIEL.

CHAP. PAGE
i., 10 175
ii., 6 . . . 301, 430
iv., 9 . . 445, 462, 479
— 9–12 . . 422, 423
vi., 13 400
vii., 16 214
xii., 13 . . . 162, 163
xiii., 4 87
— 19 422
xvi., 10 44
— 11–13 . . . 229
xvii., 3 174
— 5 414
— 10 34
— 15 105
— 23 342
xix., 2 116
— 4 160
— 4–8 119
xx., 28 401
xxii., 27 . . . 153
xxiii., 20 41
xxv., 5 135
xxvi. 288
— 5 288
— 10 102
— 14 . . . 138, 288
xxvii., 5 . . . . 343, 353
— 6 . . . 82, 339
— 7 137
— 14 . . . 102, 124
— 15 . . . 81, 349
— 16 328
— 17 . . 324, 336, 411, 476, 490, 492
— 18 . . . 136, 406
— 19 . . . 341, 439
— 20 107
— 21 134
xxviii., 24 . . . 430
xxix., 3 . . 151, 259, 269, 270
— 4 . . . 291, 292
xxx., 23 . . 346, 364
xxxi., 3–6 . . . 342
xxxi., 8 . . 344, 353
xxxii., 2 . . 151, 269, 270
xxxviii., 4 . . . 291
xl., xli. . . . 385
xl., 5 437
xliv., 17 446
xlvii., 10 . . . 287

DANIEL.

CHAP. PAGE
i., 12–16 . . . 476
v., 21 41
vi. . . . 119, 371
vii., 6 112
— 9 144
viii., 5 88

HOSEA.

ii., 9 446
— 12 350
iii., 1 412
— 2 422
iv., 3 371
— 13 . . 350, 389, 409
— 16 68
vi., 3 31
viii., 1 175
— 9 42
ix., 6 . . . 424, 474
— 10 352
— 11 160
x., 1 413
— 4 . . . 447, 455
— 8 . . . 423, 425
— 11 68
— 14 177
xi., 11 216
xiii., 5 34
— 7 112
— 8 . . . 37, 48
xiv., 2 73
— 5 462
— 6 373
— 7 406

JOEL.

i., 4 . . . 308, 312
— 7–12 . . . 350
— 12 334
ii., 2–7, ... 314
— 4 102
— 22 350
— 23 31
— 25 . . . 310, 312
iii., 13 409
— 19 392

AMOS.

CHAP.	PAGE
i., 1	16
ii., 9	342, 371
iii., 5	162
— 8	119
— 12	93, 118
— 15	82
— 15, 16	312
iv., 2	291
— 9	312
v., 7	493
— 19	47, 278
vi., 4	70, 82
— 12	455, 493
vii., 1	313, 454
— 14	400
viii., 6	489
ix., 13	408

JONAH.

i., 17	152, 292
ii., 5	435
iv., 5-10	449

MICAH.

i., 8	110, 191, 235, 264
— 13	81, 102
— 16	172
iv., 4	351, 413
vii., 1	352
— 4	427
— 17	301

NAHUM.

ii., 3	319
— 7	217
— 11	116
— 12	118
iii., 2	106
— 15	310
— 17	313

HABAKKUK.

i., 8	102, 106, 112, 153, 172, 175
— 15	289, 291
iii., 17, 18	377
— 19	100

ZEPHANIAH.

CHAP.	PAGE
ii., 6	139
— 9	432, 475
— 13, 14	243
— 14	251
iii., 3	153

ZECHARIAH.

i., 8–11	365
iii., 10	351, 413
iv., 3	377
— 11–14	377
v., 9	248
ix., 9	40
x., 1	31
— 3	88
xi., 1, 2	342
— 2	370
— 3	118
xii., 11	389
xiv., 5	16
— 10	388, 409
— 20	107

MALACHI.

i., 3	264
— 8	110
iii., 2	480
iv., 2	70

APOCRYPHA.

2 Esdras.

ii., 45	385

Ecclus.

xi., 30	163, 225
xxiv., 14	346, 380, 477
— 15	297
xxxix., 13	477
l., 8	477

Baruch.

vi., 22	46, 66

Susannah.

v., 54	362

1 MACC.

CHAP. PAGE
iii., 4 120
vi., 30, 34, 37 83
— 34 363
x., 84 293
xiii., 51 385

2 MACC.

ix., 9 301
x., 7 385
xiv., 4 385

MATTHEW.

ii., 11 365
iii., 4 66
— 7 276
— 16 220
iv., 18 290
vi., 17 377
— 19 327
— 26 160
— 28, 29 462
vii., 6 . . . 59, 145, 299
— 15 153
— 16 . . . . 426, 427
viii., 20 87
ix., 17 412
x., 16 . . . 153, 220, 279
— 29 . . . . 161, 201
xi., 7 437
xii., 20 446
— 24 327
— 33 412
— 34 276
— 40 292
xiii., 8 489
— 24–30 486
— 31, 32 472
— 45 298
— 47–50 289
xv., 27 58
— 33 409
xvii., 20 472
— 27 291
xix., 24 66
xxi., 12 212
— 19 352
— 33 406
xxiii., 23 . . 419, 443, 471, 478
— 24 328
— 33 276
xxiii., 37 159
xxiv., 28 174
— 32 351
xxv., 32, 33 90
xxvi., 34 221
xxvii., 28 298
— 34 448
— 48 . . . . . 411, 457

MARK.

i., 6 66
ii., 22 93
iv., 31, 32 472
ix., 44 301
xii., 2 406
xiii., 35 221
xiv., 3 485
— 30 221
xv., 23 . . . . . 365, 448
— 36 457

LUKE.

ii., 8 139
— 22–24 211
iii., 7 276
v., 5 289
x., 3 153
— 19 302
— 34 375
xi., 42 . . . . . 419, 471, 478
xii., 6 . . . . . 161, 201
— 24 200
— 27 462
— 54, 55 33
xiii., 15 70
— 18, 19 472
— 32 87
— 34 221
xiv., 19 68
xv., 16 360
— 29, 30 90
— 30 69
xvii., 6 . . . . . 363, 396, 472
xix., 4 399

JOHN.

ii., 14–16 212
iv., 7 300
x., 1–6 140

CHAP. PAGE

xii., 3 485
— 13 383
xiii., 38 221
xv., 1–8 413
— 2 408
xix., 2 298
— 39 . . . . 333, 365
xxi. 290

ACTS.

ii., 13 . . . 409, 411
viii., 28 106
ix., 36 129
xii., 20 490
— 23 301
xx., 29 153
xxvii., 12 379
xxviii., 3 276

ROMANS.

iii., 13 . . . 269, 275
xi., 17–24 377

I. CORINTHIANS.

ix., 7 136

PHILIPPIANS.

iii., 2 79

I. TIMOTHY.

ii., 9 298

HEBREWS.

CHAP. PAGE

vi., 8 . . . . 426, 427
ix., 19 456
xi., 37 138

JAMES.

iii., 7 272
v., 2 326
— 7 31

I. PETER.

v., 8 120

II. PETER.

ii., 16 39
— 22 145

III. JOHN.

13 437

REVELATION.

v., 5 119
vii., 9 384
viii., 11 493
ix., 3, 5, 10 302
xi., 1 437
— 4 377
xvi., 13 286
xvii., 4 298
xviii., 12 401
— 13 347
xxi., 21 293
xxii., 15 79

INDEX OF SUBJECTS.

Absinthe, 493
Acacia farnesiana, *A. serissa*, *A. tortilis*, 392
Acacia nilotica, *A. seyal*, 391, 438
Acanthus spinosus, 432, 478
Acrydium peregrinum, *A. lineola*, 307
Addax, 57, 126
Adder, 273
Adonis palæstina, 465
Œdipoda migratoria, 307
Alactaga arundinis, 123
Alcephalus bubalis, 57, 83
Algum tree, 331
Alkali, 481
Allium cepa, 475
,, *porrum*, 460
,, *sativum*, 448
Almond, 332, 358
Almug, 331
Aloes, 333
Althea, 477
Ammoperdix heyi, 227
Amydrus tristramii, 204
Amygdalus communis, 332
Anastatica hierochuntina, 477
Andropogon schœnanthus, 439
Anemone, *A. coronaria*, 464
Anethum graveolens, 419
Animals, classification of, 55
Anise, 419
Ant, 319
Antelope, 57
Antilope addax, 57, 126
,, *leucoryx*, 57
Aoudad, 73
Ape, 37
Apis fasciata, 323
Apple, 334
Apples of Sodom, 427
Apricot, 335
Aquila chrysaëtus, &c., 164
Ardea cinerea, &c., 241
Artemisia judaica, &c., 493
Arum, 439
Arundo donax, *A. scriptorum*, 437
Arvicola arvalis, 122
Ash tree, 335
Asp, 270
Asinus hemione, *A. hemippus*, 43
Asinus vulgaris, 38
Ass, 38
,, Wild, 41
Astragalus tragacantha, 393, 422
Athene persica, 193
Atriplex halimus, 466
Aucklandia costus, 341
Auerochs, 148
Avicula margaritifera, 299

Badger, 44
Balanites ægyptiaca, 336
Bald Locust, 310
Balsam, 336
Balsamodendron gileadense, 337
,, *myrrha*, 365
Barbus longiceps, 286
Barley, 420
Bat, 45
Bay tree, 338
Bdellium, 422
Beans, 422
Bear, 46
Beasts, 36
,, Wild, 50
Beden, 95
Bee-eater, 208
Bee-hives, 325

Bees, 322
Beetle, 306, 310
Behemoth, 50
Bekk'r el wash, 83
Birds, capture of, 161
„ classification of, 157
„ clean and unclean, 158
„ creation of, 156
„ geography of, 165
„ nesting in temples, 159
„ singing of, 160
„ species of, 167
Bison bonasus, 146
Bitter herbs, 432
Bittern, 243
Blennius lupulus, 287
Boar, wild, 54
Borassus flabelliformis, 422
Bos bubalus, 72
„ *taurus*, 67
„ *primigenius*, 146
„ *urus*, 146
Boswellia serrata, 356
Botany, general view of, 330
Botaurus stellaris, 243
Box thorn, 424
Box tree, 339
Brambles, 423
Briers, 423
Bubale, 57, 83
Bubo ascalaphus, 192
Buckthorn, 428
Buffalo, 56, 72
Bufo pantherinus, 281
Bulbul, 203
Bull, Wild, 56
Bulrush, 433
Bush, Burning, 392, 437
Butcher's Broom, 431
Buteo ferox, 186
Butomus umbellatus, 435
Buxus longifolia, 339
Buzzard, 186

Caccabis saxatilis, 225
Calamus, 438
Calotropis procera, 484
Camel, 58
Camelus bactrianus, *C. dromedarius*, 65
Camphire, 339
Cane, Sweet, 485
Canis aureus, 85, 110
Canis familiaris, 78
„ *lupus*, 152
„ *lycaon*, 155
„ *syriacus*, 86, 111
Cankerworm, 312
Caper, 340, 455
Capparis ægyptiaca, 458
„ *spinosa*, 456
Capra angorensis, *C. hirca*, 93
„ *beden*, *C. sinaitica*, 95
Capreolus pygargus, 97
Caprimulgus, 190
Carob tree, 360
Carthamus oxyacantha, 425
Cassia, 340
Castor-oil plant, 449
Cat, 66
Caterpillar, 313
Cattle, 67
Cedar (*Cedrus Libani*), 341
Centaurea calcitrapa, *C. verrutum* 426
Cerastes, 274
Ceratonia siliqua, 360
Cervus barbarus, *C. elaphus*, 101
Chameleon, 262
Chamois, 73
Chariot, 104
Cheetah, 113
Chesnut, 344
Christ's Thorn, 428
Chromis nilotica, 285
'Ciccar' of the Jordan, 25
Ciconia alba, 244
„ *nigra*, 249
Cidaris glandifera, 20
Cinnamon, 346
Cinnamonum cassia, 340
„ *zeylanicum*, 346
Circaëtus gallicus, 183
Circus æruginosus, &c., 191
Cistus creticus, *C. salvifolius*, *C. villosus*, 459
Citron, 347
Citrullus colocynthus, 451, 483
Citrus medica, 347
Clarias macracanthus, 285
Climate of Palestine, 28.
Cobra, 271
Coccus ilicis, 319
Cock, 221
Cockatrice, 275
Cockle, 439

Columba œnas, C. palumbus, C. schimperi, 215
„ *livia*, 213
Coney, 75
Coral, 328
Corchorus trilocularis, 466
Coriander (*Coriandrum sativum*), 439
Cormorant, 252
Corn, 440
Corvus corax, &c., 200
Cotton, 440
Coturnix vulgaris, 229
Cotyle palustris, C. rupestris, 207
Crane, 239.
Crateropus chalybeus, 204
Cricetus auritus, 122
Crimson-worm, 319
Crocodile, 258
Crocus sativus, 479
Cuculus canorus, 210
Cuckoo, 209
Cucumber, 441
Cucumis chata, 442
„ *melo*, 468
„ *prophetarum*, 450
„ *sativus*, 442
Cucurbita citrullus, 468
„ *pepo*, 449
Culicidæ, 327
Cuminum sativum (cummin), 443
Cupressus sempervirens, 348
Cynocephalus, 132
Cyperus esculentus, 435
„ *papyrus*, 433
Cypress, 348
Cyprinodon, 287
Cypselus apus, C. melba, &c., 207

Daboia xanthina, 275
Dagon, Fish-god, 293
Dama vulgaris, 84, 101
Darnel, 487
Dates, 386
Dead Sea, character of, 23, 25
Dill, 419
Diospyrus ebenus, 349
Dog, 78
Dormouse, 122
Dove, 210
Dove's Dung, 443
Dragon, 80, 263
Dromedary, 64, 80

Eagle, 172
Eagle, Short-toed, 183
„ Golden, 184
Earthquake, 15, 16
Ebony, 349
Ecbalium elaterium, 451
Echeneis remora, 292
Echis arenicola, 277
Egretta alba, E. garzetta, 242
Eleagnus angustifolius, 372
Elecampane, 432
Elephant, 81
Elephas africanus, E. indicus, 83
Elm, 350
Emberiza cœsia, &c., 203
Emys caspica, 256
Erinaceus europæus, 102
Ervum lens, 461
Eryngium creticum, 431
Eryx jaculus, 270
Euspiza melanocephala, 203

Falco, 190
Fallow deer, 83
Felis chaus, F. domestica, F. maniculata, F. syriaca, 67
„ *jubata*, 113
„ *leo*, 115
„ *leopardus*, 111
Ferret, 85, 265
Ficus carica, 350
„ *sycomorus*, 397
Fig tree, 350
Fir, 353
Fishes, clean and unclean, 283
„ creation of, 282
„ of Sea of Galilee, 285
Fishing, modes of, 289
Fish markets, 288
„ pools, 287
„ worship, 293
Fitches, 444
Flags, 435
Flax, 445
Flea, 305
Flies, 327
Forests, 6, 7
Formica, 321
Fowl, fatted, 220
Fowling, 162
Fox, 85
Francolin, 227

Frankincense, 354
Fritillaria persica, 463
Frog, 280
Frost, 28, 29

Galbanum, 447
Galilee, geology of, 21
Galilee, lake of, its fishes, 285, 289
Gall, 447
Gallinule, purple, 250
Gallus, &c., 223
Garlic, 448
Gazella cora, 130
,, *dorcas*, 129
Gazelle, 88, 127
Gecko, 265
Ghor, formation of the, 5
Gier-Eagle, 179
Gilead, 8
Ginseng, 476
Geology of Palestine, 15
Gladiolus byzantinus, 463
Glass-snake, 268
Glede, 185
Gnat, 327
Goat, 88
,, Wild, 95
Gopher wood, 356
Gossypium herbaceum, 441
Gourd, 449
,, Wild, 451
Grapes, 404, 410
Grass, 452
Grasshopper, 310
Greyhound, 97
Griffon, 172
Grove, 356
Grus cinerea, 239
Gryllotalpa didactylus, 307
Gypaëtus barbatus, 170
Gyps fulvus, 172

Hæmopis sanguisuga, 300
Halicore cetacea, 152
,, *hemprichii*, *H. tabernaculi*, 44
Hamster, 122
Hare, 98
Harrier, 190
Hart, 99
Hawk, ~~188~~ 189
Hay, 454
Hazel, 358
Heath, 358
Hedgehog, 101
Hemichromis, 285
Hemlock, 455
Henna, 339
Herbs, 455
Heron, 241
Herpestes ichneumon, 151
Heshbon, fish-pools of, 286
Hind, 99
Hippopotamus, 53
Hirudo medicinalis, 300
Hirundo rufula, *H. cahirica*, &c., 207
Hollyhock, 477
Honey, 324
Hoopoe, 208
Hordeum, 420
Hornet, 322
Horse, 102
Horseleech, 299
Husks, 361
Hyæna, 107
Hydrosaurus niloticus, 269
Hyla arborea, 280
Hyrax syriacus, 75
Hyssop, 455
Hystrix cristata, 125

Ibis, Sacred, 250
Ichneumon, 151
Insects, 304
Inuus sylvanus, 37
Inula, 432
Iris caucasicum, *I. sisyrhynchium* 463
Ivory, 81
Ixolirion montanum, 463

Jabbok, fishes of, 286
Jackal, 87, 109
Jerboa, 123
Jericho, Rose of, 477
Jonah's Gourd, 449
Jordan Valley, description of, 5, 10
,, fishes of, 286
,, geology of, 22
Juglans regia, 413
Juniperus excelsa, 349
,, *sabina*, 358
Juniper, 359

Kebsch, 73

Ketupa ceylonensis, 196
Kite, 186
Knapweed, 426

Lacerta lævis, *L. viridis*, 267
Ladanum, 458
Lammer-Geier, 170
Lanius, 203
Lapwing, 208
Larus, 210
Laurus nobilis, 338
Lausonia alba, 339
Lebanon, 10
Leek, 460
Lentiles, 461
Leopard, 111
Lepus ægyptiacus, *L. isabellinus*, *L. sinaiticus*, *L. syriacus*, 99
Leviathan, 257
Lice, 304
Lign Aloes, 333
Lilium chalcedonicum, 462
Lily, 462
Linen, 465
Linum sativum, 445
Lion, 115
Lizard, 266
Locust, 306, 313
Locust tree, 360
Lolium temulentum, 439, 486
Lycium europæum, 424

Mallows (*Malva*), 465
Mammalia, 35
Mandragora officinalis, 466
Mandrake, 466
Manna, 362
Mastick tree, 362
Meles taxus, 44
Melon, 468
Mentha sativa, *M. sylvestris*, 471
Merops, 208
Millet, 469
Milvus ægyptius, *M. ater*, *M. regalis*, 187
Mint, 471
Minnith, wheat of, 491
Mole, 120
Morus nigra, 396
Moth, 326
Mouse, 122
Mulberry tree, 363, 396
Mule, 124

Murex brandaris, *M. trunculus*, 297
Muscari racemosum, 463
Mustard tree, 472
Mustela putorius, *M. vulgaris*, 151
Mygale cementaria, 304
Myoxus glis, 122
Myrmica, 321
Myrrh, 364
Myrtle (*Myrtus communis*), 365

Naja haje, 271
Narcissus tazetta, 463, 476
Nardostachys jatamansi, 485
Nectarinia oseæ, 204
Neophron percnopterus, 179
Nerium oleander, 416
Nettles, 474
Nigella orientalis, 445
Nigella sativa, 444
Night-hawk, 191
Nitre, 480
Notobasis syriacus, 424
Nubk tree, 428
Nuphar lutea, 465
Nuts, 366
Nymphæa alba, 465

Oak, 367
Oil tree, 371
Oleander, 416, 477
Oleaster, 372
Olea europæa, 373
Olive, 373
„ Wild, 377
Onion, 475
Onycha, 297
Opobalsamum, 337
Origanum ægyptiacum, 486
Ornithogalum umbellatum, 443
Oryx, 57
Osher, 484
Osprey, 181
Ossifrage, 170
Ostrich, 233
Ovis aries, 133
„ *laticaudata*, 143
„ *musimon*, 74
„ *tragelaphus*, 73
Owl, 191
„ Great, 192
„ Little, 193
Ox, 68
Oxylophus glandarius, 210

Paliurus aculeatus, 428
Palm tree, 378
Palmerworm, 312
Pandion haliaëtus, 182
Panicum miliaceum, 469
Pannag, 476
Papaver arenarium, 448
Paper reeds, 435
Papyrus, 433
Parched corn, 492
Partridge, 224
Passer, 202
Pavo cristatus, 223
Peacock, 223
Pear, 334
Pearls, 298
Pediculi, 304
Pelican, 251
Pennisetum cenchroides, 453
Petrel, 210
Petrocincla cyanea, 202
Phalacrocorax carbo, *Ph. pygmæus*, 252
Phœnix dactylifera, 378
Physical Geography of Palestine, 1
Pigeon, 210
Pimpinella anisum, 420
Pine, 386
Pinus carica, 354
„ *halepensis*, *P. maritima*, 353
Pistachia lentiscus, 362
„ *terebinthus*, 400
„ *vera*, 366
Plane tree, 345
Platanus orientalis, 344
Plecotus auritus, 46
Plestiodon auratus, 268
Pomegranate, 387
Poplar, 389
Poppy, 447
Populus alba, *P. euphratica*, 390
Porcupine, 125
Porphyrio antiquorum, 249
Potash, 481
Psammosaurus scincus, 262
Pseudopus pallasii, 268
Pterocarpus santalinus, 332
Pterocles arenarius, *P. senegalensis*, *P. setarius*, 228
Ptyodactylus gecko, 265
Puffinus, 210
Pulex irritans, 305
Pulse, 476
Punica granatum, 387
Purple shell-fish, 297
Purpura hæmastoma, 297
Pygarg, 126

Quadrupeds, 36
Quail, 229
Quercus ægilops, 370
„ *infectoria*, 371
„ *pseudo-coccifera*, 368
Quince, 334

Rain, 29, 30
„ former or early, 30, 33
„ latter, 31
Rainfall, 32
Rana esculenta, 280
Ranunculus asiaticus, 465
Raven, 198
„ species of, 200
Reeds, 435
Reptiles, classification of, 254
Retama raetam (Retem), 359
Rhamnus, 424
Rhamnus oleoïdes, 428
Rhinolophus ferrum-equinum, 46
„ *clivosus*, 46
Rhinopoma microphylla, 46
Ricinus communis, 449
Roe, 127
Rose, 476
„ of Sharon, 458, 476
Rothem bush, 360
Rubus fruticosus, 430
Ruscus aculeatus, 431
Rue, 478
Rushes, 433
Ruta bracteosa, *R. graveolens*, &c., 478
Rye, 479

Saccharum officinale, 437
Saffron, 479
Salicornia, 481
„ *fruticosa*, 482
Salix, *S. babylonica*, 415
Salsola kali, 481
Salt mountain, 25
Salt of Dead Sea, 24
Salvadora persica, 473
Sand-grouse, 228
Satureia thymbra, 455
Satyr, 131

Scilla autumnalis, 463
Scolymus maculatus, 424
Scops giu, 195
Scorpion, 301
Screech-owl, 195
Sea Gull, 210
Sea purslane, 466
Sea-weed, 435
Serpents, 269
,, Fiery, 277
,, locomotion of, 278
Sharon, Rose of, 458, 476
Sheep, 133
Shephelah, or low country, 3
Shittah tree—Shittim wood, 390
Sinai, geology of, 17
Sinapis nigra, 472
Snail, 268, 295
Snow, 28
Soap plants, 480
Sodom, site of, 25
,, Vine of, 482
Solanum sanctum, 427, 483
Sorex crassicaudus, *S. pygmæus*, 85
Sorghum vulgare, 479
Spalax typhlus, 120
Sparrow, ~~210~~ 201
Speckled-bird, 144
Spelt, 479, 484
Spicery, 393
Spider, 303
Spikenard, 484
Stacte, 395
Star of Bethlehem, 443
Star Thistle, 426
Storax, 389, 395
Stork, 244
Strix brachyotus, *Str. otus*, 196
Struthio camelus, 233
Styrax officinalis, 389, 395
Sun-bird, 204
Sus scrofa, 54, 144
Swallow, 204
Swan, 249
Sweet Cane, 485
Swine, 144
Sycamine, 363, 396
Sycomore, 397
Sylviadæ, 203
Symnium aluco, 196

Tamarisk tree, 356
Tamarix gallica, *T. pallasii* 357
Taphozoüs nudiventris, 46
Tares, 486
Teil tree, 400
Terebinth, 400
Testudo græca, *T. marginata*, 256
Thistle, 424
Thorns, 423
Thyine Wood, 401
Tineidæ, 326
Tinnunculus alaudarius, *T. cenchris* 189
Toad, 281
Tortoise, 255
Trachonitis, 4
,, geology of, 22
Tragacanth, 393, 423
Tribulus, 425
Trigonella fœnum-græcum, 461
Triticum spelta, 479
Tropidonotus hydrus, 270
Truxalis, 307
Tulip (*Tulipa gesneriana*), 464
Turpentine tree, 400
Turtle—Turtle Dove, 210
Turtur auritus, 218
,, *risorius*, 217
,, *senegalensis*, 218

Unicorn, 146
Upupa epops, 208
Uredo fœtida, 439
Uromastix spinipes, 255
Ursus syriacus, 48
Urtica pilulifera, 474
Urus, 146

Vegetables, classification of, 330
Vespa, 322
Vesperugo kuhlii, 46
Vespertilio murinus, 46
Vicia faba, 423
Vine, 402
,, Wild, 413
Vinegar, 448
Vineyards, 404
Viper, 276
Vipera ammodytes, 275
,, *aspis*, 277
,, *euphratica*, 275
Vitis vinifera, 402
Volcanic action, 15
Vulpes flavescens, *V. niloticus*, 86

Vulpes vulgaris, 85
Vultures, 180
„ Egyptian, 179
Vultures, power of sight of, 169

Walnut, 413
Watersheds of Palestine, 5
Water Lily, 465
Weasel, 151
Whale, 151
Wheat, 488
Willow, 414
Winds, 33
Wine, 406, 411
Winepress, 409
Wolf, 152
Worm, 300
Wormwood, 493

Xantharpyia ægyptiaca, 46

Zizyphus spina-christi, 428, 43
Zoology of Palestine, 35
Zootocinæ, 267

UNIVERSITY OF TORONTO
LIBRARY

Do not
remove
the card
from this
Pocket.

Acme Library Card Pocket
Under Pat. "Ref. Index File."
Made by LIBRARY BUREAU